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Frank Emerson Clark

Jan. 22, 1932

A TREATISE
on the
LAW OF SURVEYING AND BOUNDARIES

By
FRANK EMERSON CLARK
of the Minnesota Bar



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TO

THE MEMORY

OF

MY FATHER

Whose great natural ability and consistent search for truth will ever be my inspiration.

THIS BOOK IS REVERENTLY DEDICATED

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PREFACE

The underlying idea of this work had its birth in the necessity for such a help that the author discovered in a somewhat extended experience as a public and private surveyor and later as a practicing lawyer often called upon to investigate land titles. So far as the author is informed no similar work has heretofore been published.

The work sets forth the laws pertaining to surveying and boundaries and discusses the problems arising in the surveying and legal professions with reference to the location and settlement of boundaries. It furnishes the surveyor and attorney a ready reference to the acts of Congress providing for a survey of the public lands; the Instructions of the Surveyor-General to his deputies in executing public surveys; the suggestions to private surveyors sent out by the Commissioner of the General Land Office from time to time pertaining to the subdivisions of sections and the restoration of lost or obliterated corners; and the decisions handed down by the courts pertaining to the various phases of the subject of the work.

Of special interest is the chapter pertaining to riparian rights and the division of accretion among the several riparian owners. That chapter deals at length with all those riparian rights with which the surveyor and attorney are constantly coming in contact. Numbers of lakes in some of the western states are constantly drying up and the waters receding. Questions pertaining to the proper division of the boundary line between two owners of piers and their respective rights are of frequent occurrence in our cities. How are those lake beds to be divided between riparian proprietors? How should the pier line boundaries be run? How should cove flats be divided?

The chapter on "Some Usual and Unusual Questions Answered" treats at length the problems encountered by the surveyor in actual practice and advises the proper procedure in solving those problems. Likewise the chapter on "Restoration of Lost or Obliterated Corners" deals at length with that most important subject, citing authorities in each instance as a basis for the rule laid down.

Other important divisions of the work will be found in the chapters treating of "Identification of Tract," and "Evidence of Location of Corners or Lines." Naturally those chapters deal with the law of Evidence as pertains to corners and boundaries. That law is carefully digested and numerous decisions of the courts are cited to the propositions under consideration.

The numerous diagrams and illustrations are intended to make plain the particular proposition under consideration. Many of the diagrams are taken from adjudicated cases and should be studied in connection with the discussion of those cases.

The first eight chapters of the work apply especially to all states having the rectangular system of surveying. They do not apply to the thirteen original states. The succeeding seventeen chapters are applicable to all the states, whether the survey was made under the rectangular system or under the old metes and bounds systems followed in the survey of the thirteen original states.

The author submits the result of his labors in the belief that he has wrought out a work that will aid the surveyor in executing difficult surveys and will furnish the attorney a ready reference to the laws and decisions of the court on a subject of large importance.

FRANK EMERSON CLARK.

Minneapolis, Minnesota,
November 1st, 1922.

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SURVEYING AND BOUNDARIES

CHAPTER I

LAND SURVEYING

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§ 1. **Generally.**—Speaking generally the term surveying or survey is applied in various ways, as will be evident by an examination of any good dictionary or encyclopedia. In this work, however, these terms apply to land surveying only, and we shall seek to give to the professions (those of surveying and attorneys) a work which will furnish them easy access to the laws and rules laid down by the courts and the land department of the government with reference to the survey and subdivision of lands. It is of special importance that these professions become familiar with the instructions given out by the government to the surveyor-general and his deputies to

be followed in the execution of a particular survey. Likewise they should become familiar with the decisions of the courts on various subjects closely related to and inseparably connected with the survey of land.

The professions should bear in mind that original surveys in some states were executed by the surveyor-general under special instructions from the commissioner of the general land office. In retracing the lines of such surveys such special instructions should be carefully examined by the surveyor.

It is not intended that this work shall be a work on surveying but the need felt by surveyors and attorneys of a general work on the law of surveying, containing citations of decisions touching that branch of science and subjects connected more or less therewith has prompted the author to undertake the task.

§ 2. **History.**—"As the earliest records of man refer to skilled measurements and calculations, it is impossible to assign the birth of the science of surveying to any particular year or country," says the Encyclopedia Americana. And the Encyclopedia Britannica affirms, "The first rude attempt at the representation of natural and artificial features on a ground plan based on actual measurements of which any record is attainable were those of the Romans, who certainly made use of an instrument not unlike the plane table for determining the alignment of their road."

It seems quite well established that the Chinese, at an early date, and the Egyptians, long before Christ's time, practiced the art of surveying. In the latter instance it was necessary in order to retrace the boundary lines of tracts inundated by the annual overflow of the Nile. By such annual overflow all traces of boundary lines were obliterated and it required a high degree of skill and the application of modern rules for the retracing of such lines and the replacing of the original corners at the places where they were planted.

The first public surveys in the United States were made under an ordinance passed by the Continental Congress dated May 20, 1785, and provided that the townships should be six miles square laid out into ranges, extending northward from the Ohio river, the townships being numbered from south to north, and the ranges from east to west. The region embraced under this law forms a part of the State of Ohio and is usually styled, "The Seven Ranges." The exterior lines of the townships only were surveyed, but the plats were made showing sections of one mile square. Mile corners were established on the township lines. The sections were numbered from one to thirty-six, commencing with number one in the southeast corner of the township and closing with number thirty-six in the northwest corner thereof. By this method number six was in the northeast corner and number seven west of and adjacent to number one. This act was amended May 18, 1796, and provided, among other things, that "the sections should be numbered, respectively, beginning with number one in the northeast section and proceeding west and east alternately, through the township, with progressive numbers till the thirty-sixth be completed." This method has been followed since that time. The act has been amended several times.

In making a survey of a state there is established a principal (true) meridian, and approximately at right angles thereto a base line. This line conforms to a parallel of latitude. It is established astronomically. Thirty-two sets of base lines and thirty-four of meridians have been established to the present time.[1] Standard parallels or correction lines are established every twenty-four miles, north and south of the base line. Guide meridians, conforming to true meridians, are established at intervals of twenty-four miles along standard parallels, and run due north and south to the intersection of the next stand-

[1]Manual (1919) § 141.

ard parallel. The rectangles so formed are subdivided into sixteen townships.

§ 3. **Metes and bounds.**—A survey of a tract by metes and bounds is the oldest known manner of describing land and is the outgrowth of the art of surveying as practiced in olden times. It consists of running out tracts of land by courses and distances and planting monuments at the several corners or angles. The planting of permanent monuments at each angle is of paramount importance. It will be readily seen that the description of property by metes and bounds means little to the layman, is difficult and liable to error. For this reason, doubtless, surveyors inaugurated the rectangular system, which is in force largely in the United States, west of Pennsylvania, and in western Canada.

Owing to the variation of the magnetic needle, the stretching of chains and tapes used in making surveys, the condition of the weather, and the difference in chainmen, it is exceedingly difficult to retrace obliterated or lost lines of such boundaries unless at least one of the lines can be identified. If the surveyor can find one of the sides of the tract, he can adjust his instrument and chain or tape to correspond with those used in the prior survey, or he can locate the other lines and corners by proportional measurements. This subject will be considered in a later chapter of the work.

§ 4. **The rectangular system.**—The experience of mankind with irregular tracts and surveys by metes and bounds, with complicated descriptions in deeds, and with the difficulty of retracing the lines under such circumstances, brought about the more simple and accurate method of surveying by the rectangular system, referred to in section three. By this system any tract of land can readily, easily and briefly be described and distinguished from all other tracts. Furthermore lost or obliterated lines and corners can be retraced much easier and more satisfactorily than under the system of metes and bounds. The professions will not infer, however,

that this is always an easy job. It is frequently exceedingly difficult.

§ 5. **Fixed monuments.**—We can not impress on the surveyor too strongly the necessity of planting at each corner established by him, permanent monuments for future reference and from which future surveys may be made. If possible these should be of stone or iron, set firmly in the soil. In a timbered country at least two witness trees should be established at each corner. These should be properly marked and noted by the surveyor in the minutes of the survey. If there is no timber in the immediate vicinity, pits should be dug and mounds thrown up or references should be made to other natural features, such as hills, ridges, creeks, etc. This will enable future surveyors to find the original corner.

§ 6. **Courses.**—Bouvier, in his law dictionary defines a course to be: "The direction of a line with reference to a meridian." For instance, a course of north 30 degrees west means a bearing of 30 degrees to the west of a true north and south line. If a course be run with reference to the needle, the instrument must first be adjusted with reference to the magnetic variation of the needle, at that place, from a true north and south line. It would be advisable for the surveyor to establish astronomically such a line and frequently adjust his instrument with reference thereto. By all means this should be done in original surveys and monuments planted, fixing the location of such line, and reference made in the notes thereto. Better still to use the solar compass. In fact the rules of the land department now require that all public surveys be executed with the solar compass.[2]

§ 7. **Distances.**—The distance on a line measured by the original surveyor is conclusively presumed to be correct.[3] This, however, is seldom the case. Original surveys are frequently inaccurate and lines overrun or fall short of the true

[2]Manual (1919) § 40; Manual (1902) § 32.

[3]Post ch. XV; Mason v. Braught, 33 S. Dak. 559, 146 N. W. 687.

distance. In retracing such lines the surveyor must work on the theory that the error is his and not in the original work. He will apportion the lines run by him according to the former survey. If he can identify the two ends of a line, as originally fixed, he can apportion the remainder of his work accordingly and can, with reasonable accuracy, locate the old lines and corners.

§ 8. **Courses and distances yield to fixed monuments.**—The principle, that courses and distances yield to fixed monuments, applies to all surveys, ancient and modern. Monuments are either natural or artificial. Natural, such as a tree, hill, ledge, creek, lake, pond, or other object. Artificial, such as a post, mound, pit, canal, fence, wall or the like. Natural monuments are of a higher order than artificial and take precedence of the latter. The law as to courses, distances and monuments will be fully digested and citations made later.[4]

§ 9. **Retracing lost lines.**—The surveyor will have much difficulty in this branch of the work. If one fixed monument can be found at any corner of the tract to be run, start from that point. Adjust the transit by allowing for corrections in the difference in the magnetic variation of the two surveys. Lay off the courses from that monument and measure the required distance to the next corner. At this point search for stake or monument by carefully shaving off the earth where the monument or stake is thought to be. If the monument be found then adjust the transit to correspond with the line between the two known points, and accurately measure the distance between those points. Then adjust the chain or tape to correspond with the known line. Using the known line as a base, run out the several sides of the tract by courses and distances given in the description. Or instead of adjust-

[4]Post ch. XV; Russell v. M. L. Grant Co., 158 U. S. 253, 39 L. ed. 971, 15 Sup. Ct. 827.

ing the chain or tape the surveyor may establish the several sides by proportional measurements. Search for remaining monuments in like manner. Find as many of the original monuments as possible and re-establish others by proportional measurements and corrections. The reader is referred to a further consideration of the subject.[5]

§ 10. **To run out old lines where none of the original monuments can be found.**—The surveyor will find great difficulty in running out old lines in cases where he may have to retrace the boundaries of a field described by metes and bounds, none of which lines, apparently, can be found. We will assume that the surveyor, after a thorough search, is able to find one of the original corners and to identify it with certainty. It will be readily seen that if he does not know the date of the original survey and the rate of variation used in that survey, the line, as originally located, can not be found with exactness. True, the field will be of the same general shape and will begin and close at the same point and its sides will be of the same number and of like distances.

The surveyor will first ascertain approximately when the survey was made, and, if possible, the variation of the needle used in such survey. If he can establish these points he can proceed to trace the lines of the field, having first adjusted his own instrument by the use of tables of changes in variations from year to year to be found in any work on surveying. Still his troubles are not yet over. He will likely find that the chain or tape used in the former survey does not correspond with his own. It is more than likely that such chain or tape will be too long or too short, and hence that the measurements will not correspond. Moreover, the original survey may have been full of errors in other ways, such as carelessness in measuring or inaccuracy in turning off angles and running courses. Still that survey is conclusively presumed to be correct and

[5] Post § 383.

the surveyor to follow must retrace the old lines. Owing to the difficulty in retracing old lines, many disputes arise between adjacent land owners and juries, and judges are kept busy deciding from the evidence of conflicting surveys where the true line should be. We are not at this time touching on the rights of either party to maintain the line as per occupation and adverse possession.

The surveyor will carefully examine the surroundings and get such points to aid him as possible. Old fences may be and should be consulted. Ridges caused by the land being worked by adjoining owners for many years, or hedges or rows of trees growing in the immediate vicinity may help wonderfully to solve the difficulty. Piles of stones known to have been in the same place for many years along an old hedge or fence supposed to have been one of the lines of the old field may be helpful. He should gather evidence from old residents as to location of ancient fences, etc. In this way the surveyor may be able to retrace one of the sides of the tract, and by careful search, find a trace of a monument or a post marking another corner. He can then re-adjust his instrument and his chain or tape to correspond with those of the former surveyor, and can then proceed with reasonable certainty, or he may establish courses by proportional measurements. He should make further searches for monuments or posts to original corners, so as to confirm his work to a reasonable certainty. Most surveyors fail in making a thorough search.[6]

§ 11. **When no original monument can be found.**—If a field bounded by metes and bounds, where none of the original monuments can be found, is required to be surveyed and the old lines retraced and reestablished the surveyor has a real problem. At best his work will be unsatisfactory. He will first exhaust all possible efforts to find some trace of at least

[6]Stadin v. Helin, 76 Minn. 496, 79 N. W. 537, 602.

one original monument by carefully digging over the ground in the vicinity where such corner is thought to be. He should consult old residents who, at one time, knew where the corner was said to be. He should seek to learn all surrounding circumstances as to the corners and boundaries of the tract sought to be surveyed. He should rely on courses and distances only when fixed monuments can not be found or can not be relocated with reasonable certainty by a reference to surroundings or by a resort to evidence of old residents, or by declarations of persons long since deceased, who were likely to have known where the original corners were located and were in a position to have so known, and which declarations were made before a controversy arose over the corners or lines and were against the interest of the party making the declarations, or that such party had no interest in the matter in controversy.[7]

If it can be shown that two old fences which meet were originally built to the corner in question and have since remained undisturbed, the surveyor would be justified in taking the point of intersection of the fences as the location of the true corner. In fact he can not disregard such evidence without doing violence to the rules laid down by the court.[8] The matter of retracing old lines and re-establishing lost or obliterated corners will be fully discussed and the authorities digested later.[9]

§ 12. **Instruments and chains or tapes.**—In these observations no attempt has been made to advise the surveyor of the necessity of adjusting his instrument with reference to the changed variations of the magnetic needle, or to carefully test his chain, except in a general way. These requirements are fundamental. The surveyor should adjust and test his instruments and chains or tapes frequently, and by all possible

[7]Gillette Indirect and Collateral Evidence, 171.

[8]Wunnicke v. Dederich, 160 Wis. 462, 152 N. W. 139.

[9]Post ch. XV.

precautions fortify himself in his every act, so that if he be called into court to sustain his survey he can establish the correctness of his work, within the meaning of the law, to a reasonable certainty. Proportional measurements and mean courses, where they can be used, are generally regarded as more accurate than adjusting chains, tapes and instruments, and should be followed. He should take nothing for granted but prove his every step. He will find opportunity to use his best judgment, founded on common sense, and bolstered up by natural conditions and such other evidence as he may gather.

§ 13. **Old surveys presumed correct.**—No matter how inaccurate the original survey may have been, it will be conclusively presumed to be correct, and that if there be error in the measurements or otherwise, such error is the error of the recent surveyor. Hence the surveyor will, at all times, keep in his mind this presumption and conform his acts thereto. This subject will be treated at length later and cases cited.[10]

§ 14. **Witness trees.**—In locating corners established by government surveyors, in wooded countries, the surveyor will satisfy himself of the location and identity of the witness trees or some of them. If he can find one or more of such trees he can generally establish the required corner accurately. In the event such trees have been removed the surveyor will make search for the stumps or the remains thereof. If he can find a stump, which he is satisfied is a part of the original tree, he can then locate the corner with reasonable certainty. If he can find neither tree nor stump he should look for a depression or some mark where the tree is supposed to have once stood. If from a surface examination he believes the tree to have been located in a certain spot, he should carefully dig over the ground in the vicinity, making a careful search for roots or rotted parts thereof or discoloration in the soil.

[10]Post ch. XV.

By these means the surveyor will frequently be able to determine the exact location of the destroyed witness tree and thus locate the corner. A corner so located should be tested in order to determine the accuracy of the work done. The surveyor will lay off the courses and measure the distances and try and locate the position of the other witness trees, if any. He should make a like search for stumps, roots or parts of such tree or a discoloration of the ground. He should by all means search for some remains of the old corner by digging over the soil as heretofore suggested. By so doing he can prove his own work. These little precautions will frequently bring success for the client and enable the surveyor to demonstrate the accuracy of his work and his theory. After all, a case in court is tried on the evidence and it is the little things which establish where the truth lies.

§ 15. **Corners.**—The surveyor will often find all stakes, posts, and monuments gone and all traces of witness trees obliterated. He will be unable to find any natural or artificial object to aid him in determining the approximate location of the corner sought. In such cases he should locate such corner by proportional measurements and the running of lines from the nearest known corners according to the rules laid down by the United States land office and fully digested in this work.[11] After he has so located such corner he should set about to prove his work. He will carefully shave off the surface of the ground where he has located such corner and look for a post, or the remains of one, or a discoloration of the soil at that point. He should enlarge the circle of ground over which he is digging and gradually dig deeper, keeping careful watch to detect the least evidence of rotted wood or discoloration of the soil. This will often enable him to locate the corner correctly, and demonstrate his work and so fortify himself with collateral facts and circumstances so as to be able

[11] Post ch. XV.

to convince the jury or the court of the accuracy of his work and the correct location of the corner.

§ 16. **Corners marked by mounds and pits.**—In a prairie country where corners were marked by post and pits and mounds, the surveyor will have little difficulty in locating the corner where surface conditions have not been changed or disturbed at the point. In such case, if the post be not found, the surveyor will take a shovel or spade and carefully shave off the top of the ground at the place indicated by the mounds and pit for the location of the corner. He should keep a sharp look out for the remains of the stake, if wood, and for any discoloration of the soil which may indicate a stake once stood at the point. Very often the surveyor will detect a slight discoloration of the soil of the size and shape of the post used at such corner. On making this discovery he will continue to dig deeper, keeping careful watch and tracing the discoloration downward until he satisfies himself he has found the obliterated corner. He should then test his work by all known means, by proportional measurements to other known corners, or natural objects, such as line-trees, streams, ponds, lakes, ledges, or marshes. These tests are for the purpose of proving his work only, and as a demonstration before a court or jury of the accuracy of his work. He should bear in mind that fixed monuments, when identified, govern and that courses and distances must yield thereto. The surveyor must exercise his best judgment and secure such additional evidence of the accuracy of his work as the surrounding circumstances in each case may suggest.

It will readily occur to the attorney, who may have for trial an issue involving lost corners, that he should fortify himself thoroughly by all manner of tests to establish the correctness of his theory of relocating the lost corner at the particular point, at which his surveyor has located such corner or corners. The surveyor should exhaust all means possible

before giving up finding the location of the original post. That point alone is certain to be right. The location by measurement is only approximately so and should be resorted to only where all other means have failed. In other words look for the tracks of the original surveyor.

§ 17. **Where mounds and pits are destroyed.**—Frequently the mounds and pits will have been destroyed and there will be no sure indication of approximately where the original corner was located. Perchance it may be in a highway which has been worked and turn-piked. If there are old fences in the immediate vicinity, which were built with reference to that corner, the surveyor will have a starter from which he should set to work to find some of the original monuments, marking such corner. He should make a careful examination of surrounding natural features and look for some reference thereto in the notes of the survey. He will find ample opportunity to exercise his judgment and demonstrate his originality. He should take measurements from line-trees, streams, lakes, or ponds and from the nearest known corners, proportionately corrected, as per original measurements, running such direct lines as may be necessary or suggest themselves to his judgment and in this manner locate the lost corner. A full discussion of the manner of re-establishing lost corners under all circumstances will be considered later.[12]

After locating the lost corner, the surveyor should, at the point so located, make a search for some trace of the post which marked the corner as originally established. This he can do in the manner herein indicated. If the corner be in a highway, which has been worked and turnpiked, he may have to do a good deal of digging before reaching the surface of the soil as it originally lay. He should use the same care in digging as heretofore suggested, keeping a careful watch for remains of the original marker or the place where it was planted.

[12]Post ch. XV.

In this manner the surveyor will frequently find some trace of the post which marked the corner. This may be the remains of rotten wood or a discoloration of the soil where the post was planted. In making these excavations a considerable space should be dug over, so as not to miss any indications of where the post stood, bearing in mind that the original measurements and courses may have been full of errors. When searching for posts he should also search for evidences of where the mounds and pits were planted. The only evidence of these which he will find in a place like the one under consideration, very likely, is a slight difference in the color of the soil where the pit was dug or the mound made.

§ 18. **Caution.—Should the original corner,** now obliterated, be in the vicinity of old fences, buildings or other structures, where posts may have been driven into the ground, the surveyor will proceed with caution and make reasonably certain he has found the post sought. He should be prepared to demonstrate, by other proof, that he has found the original post or monument, or the place where it stood. Extra precaution should be taken in such instances in order that the surveyor may be practically certain he has found the location of the original monument or marker. Unless he is reasonably certain of this he will re-establish the lost corner according to the rules laid down elsewhere in this work.[18]

§ 19. **What this work intended to be.—**It is not intended that this work shall treat of the elements of surveying. It will be assumed that the reader is either a trained and educated surveyor or lawyer. The author will seek to digest the law pertaining to land surveying, with special reference to the survey of the public lands and the subdivision thereof for private individuals. He will treat extensively of the law pertaining to the retracing of old lines and re-establishing of lost or obliterated corners, citing the decisions of the courts

[18]Post ch. XV.

on the various points and quoting at length from the statutes of the United States and from the rules and instructions laid down by the surveyor-general to his deputies.

The work is intended as a guide to surveyors throughout the country in the subdivision of lands of private owners, fully informing them of the laws as construed by the courts and setting forth the rules prescribed by the land department of the government.

Of equal value will the work be to the lawyer who frequently finds use for such work and has neither the time nor the facilities for the examination of the laws, rules and decisions of the courts with reference to the subject matter.

CHAPTER II

THE SURVEY OF PUBLIC LANDS

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§ 20. **Generally.**—In the former chapter we took a general view of the subject, defining and discussing some of the more important terms closely associated with the subject, and did not confine ourselves to a discussion of the rectangular system of surveys. In this chapter we shall deal more particularly with that system. The public lands of the United States are laid out and divided into squares whose sides run north and south (so to speak) and east and west and are approximately one mile on each side and contain six hundred and forty acres "as near as may be." It will be readily seen that these tracts can not be exactly square but for practical purposes are so

considered. These lines are run with reference to meridian lines and parallels of latitude.[1]

It must not be supposed that the original thirteen states of the Union were surveyed under the present rectangular system. They were not. However, some of those states were surveyed under a so-called rectangular system but differing greatly from the system later established by the Continental Congress, and differing greatly from each other. It was quite the practice in those days to lay off a given territory into lots of three hundred and sixty acres each.[2] What we shall consider in this chapter is the survey of the public lands under the rectangular system as established by the Continental Congress and later amended from time to time.

§ 21. **Meridian lines.**—A meridian line is a line run due north and south from a fixed point on a base line. The meridians are established at intervals of exactly six miles on such base line and on the standard parallels or correction lines. They form the east and west sides of a township and are properly called the range lines.[3] The meridian lines are run twenty-four miles or the length of four townships to a standard parallel either north or south of the base line.[4] Permanent corners are established every half mile on the meridians.

§ 22. **Parallels of latitude.**—A parallel of latitude is a line running east and west from a fixed point on a principal meridian. Parallels are established at exactly six miles apart on such principal meridian, and form the north and south sides of a township and are properly called the township lines. Such lines run east and west to the first guide meridian, twenty-four miles. In theory they are prolonged to the extent of the survey, but in practice they do not always continue in a direct line.

[1]Barnes' Fed. Code, § 4138; post ch. XXVI.

[2]Post ch. XXVI.

[3]Post § 28.

[4]Post § 27.

§ 23. **Base line.**—The base line is a line running east and west from a given point on the principal meridian, approximately at right angles thereto, and from which a survey of a considerable area of the public land is made, and from which the townships either north or south are numbered. In fact, this line is, what it purports to be, a base line, and the entire survey of that portion of the public domain has reference thereto and is based thereon. Fig. 1.

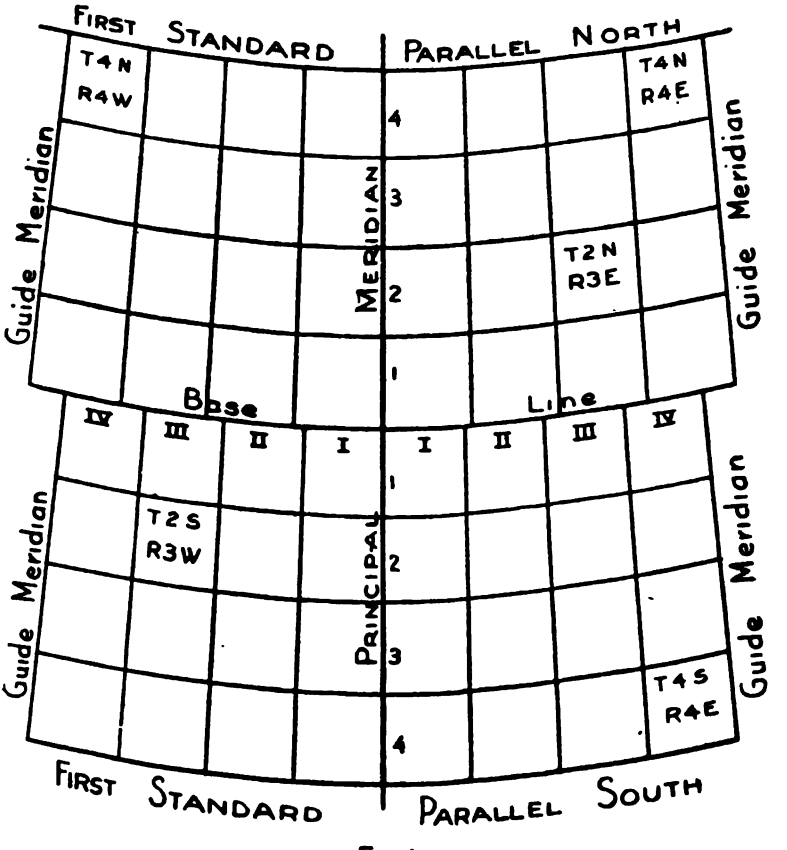


Fig 1

§ 24. **Principal meridian.**—The principal meridian is a true north and south line run from a given point on the base line

through a certain tract of country to be surveyed. The entire survey of such tract is made with reference to the principal meridian and base line. The ranges, either east or west, are numbered from the principal meridian. It will be seen that by numbering or naming the principal meridian, and by fixing the base line, and numbering the sections, townships, and ranges, any tract of land in the United States can be described with certainty and readily distinguished from all other tracts. The principal meridians, base lines, guide meridians and standard parallels are run astronomically. In fact all public surveys under the direction of the surveyor-general are now required to be run with a solar compass and the surveyor is not permitted to rely on the needle.[5] It was not thus with the older surveys, and, as a result, there were many errors. Fig. 1.

§ 25. **Townships.**—A township is a tract of land contained by running the meridians and parallels six miles apart, whose sides run north and south (so to speak) and east and west, and is approximately square and contains thirty-six square miles or twenty-three thousand and forty acres "as near as may be." From what has heretofore been said it will be seen that it is a mathematical impossibility to run lines in the manner required for township and range lines and make the tract square or contain the required area. Hence Congress provided that a township should contain twenty-three thousand and forty acres "as near as may be." As a matter of fact all townships are narrower across the north side than along the south side. The constant convergence of the meridians, as they run north, causes this. Figs. 1, 2 and 3.[6]

§ 26. **Guide meridians.**—A guide meridian is a true north and south line run from points on the base line or standard parallels, either east or west of the principal meridian, at

[5]Manual (1919) § 40; Manual (1919) §§ 32, 291.

[6]Barnes' Fed. Code, § 4137.

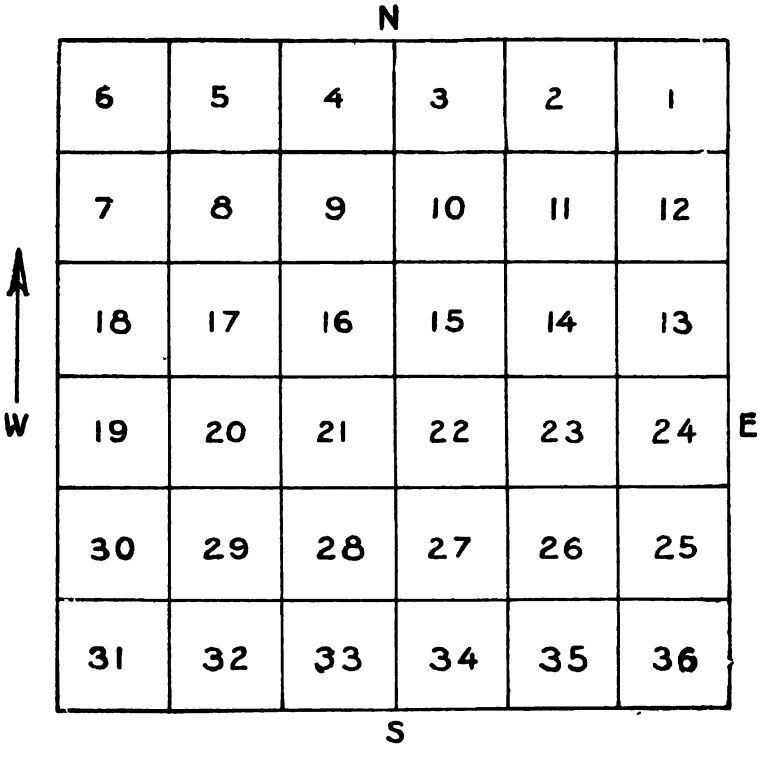


Fig. 2

intervals of twenty-four miles each. The guide meridians and principal meridian, with the base line or standard parallels, bound tracts of land twenty-four miles on the east, west and south sides, and twenty-four miles on the north side less the amount lost by the convergence of the meridians. They serve as guides to enable the surveyor to conform his north and south lines more nearly to the true meridian. Fig. 1.

§ 27. **Standard parallels.**—Standard parallels or correction lines, as they are usually termed, are lines run due east and west parallel to the base line and twenty-four miles therefrom. Fig. 1. In fact, such standard parallels are run twenty-four

miles apart and form bases for the townships lying north of such lines. On each of these correction lines a new set of corners are established for the township and sections lying north thereof. To that end the deputy-surveyor-general, beginning at the intersection of the principal meridian with such standard parallel, measures along such parallel exactly six miles for a new set of townships. These new townships are set off in both directions, east and west, of the principal meridian, in the same manner on such parallel. This is done in order to make the necessary corrections to compensate, as it were, for the convergence of the meridians. Fig. 1. It will be seen, if this correction is not made, and the meridians are extended to the north pole they will meet. Hence such meridians are continually approaching each other as they run north. The northern side of a township, north of the equator, is always narrower than is its south side. Instead of forming squares they are more in the form of a trapezoid, whose shortest side is on the north. The surveyor can readily compute the difference between the north and south sides in length. He must know the latitude. If the land lies between 46 and 47 degrees north latitude the difference in length between the north and south sides of a township is practically 76 links, i. e., the north side is that much shorter than the south side, providing the survey was accurately made. In running four townships the difference would be about 3.04 chains. Hence it will be seen that the corners marking the closing lines of a township, on a standard parallel, can not be the same as the new set of township corners for townships lying north by approximately that distance. Thus we have, what all surveyors are familiar with, the double corners, for sections, as well as townships, on these correction lines. Fig. 3.

Formerly these correction lines were run thirty, forty-eight and even sixty miles apart, instead of twenty-four miles as per present instructions. This must be taken into considera-

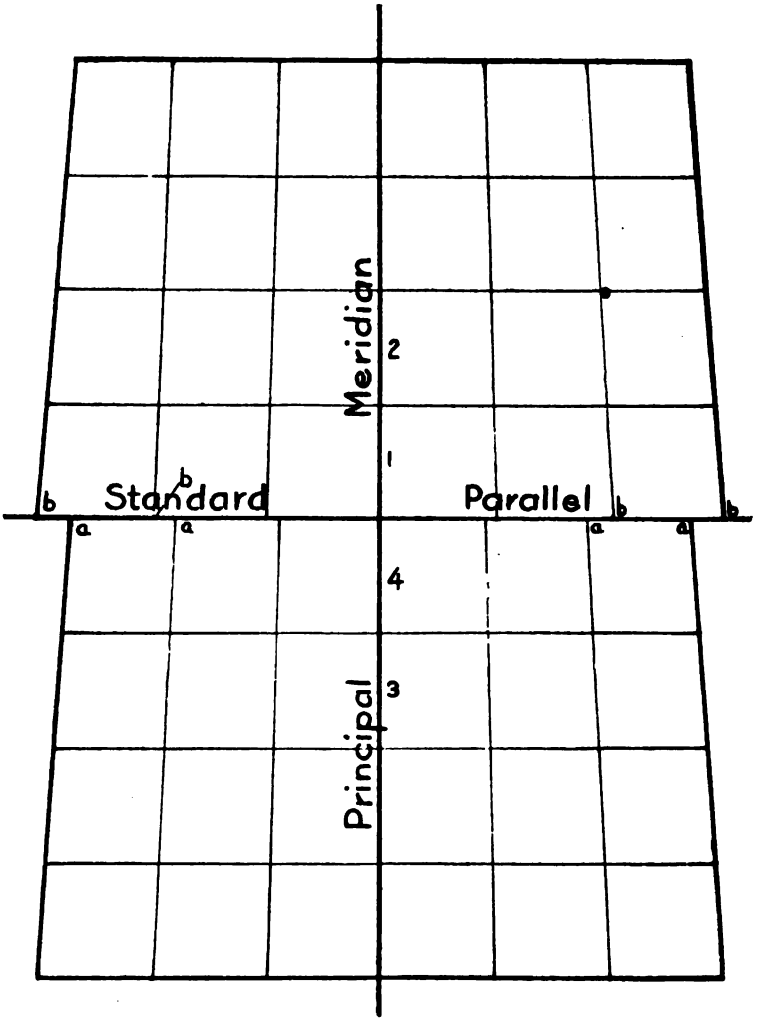


Fig 3

tion in the survey of lines in the older surveys, as well as many other differences which will be found in old surveys, made under instructions laid down by the surveyor-general at the

time. For instance, at the time the territory of Oregon was surveyed, we find the following instructions sent out to the deputy surveyors: "standard parallels (usually called correction lines) are established at stated intervals of thirty miles to provide or counteract the error that otherwise would result from the convergence of meridians; and because the public surveys have to be governed by the true meridian, such lines serve also to correct errors arising from inaccuracies in measurements. Such lines, when lying north of the principal base, themselves constitute a base to the surveys to the north of them."[7] Referring to Fig. 3 double corners will be found on the standard parallel at a, a, etc., and at b, b, etc. The closing corners thereon, a, a, a, a, and, b, b, b, b, are new corners for townships lying north. The latter are exactly six miles apart.

§ 28. **Ranges.**—All of the townships situated north and south of each other are designated as ranges. They are numbered from the principal meridian, east and west on the base line. They are read "range one or two east or west, etc.," as the case may be. The townships situated east and west of each other are designated as townships, in describing lands, and are numbered from the base line north and south on the principal meridian. They are read, "township one or two, etc., north or south," as the case may be. Fig. 1.

§ 29. **Sections.**—A section is a tract of land one mile square and containing six hundred and forty acres "as near as may be." It will be evident from what has already been said that such a tract of land bounded by lines running north and south and east and west can not be square, though it is supposed to be that form. The same may be said of a tract one mile each way north and south and along the south side, even where

[7] Manual for Field Operations (1851). Carpenter's Manual for County Surveyors. § 85.

the east and west sides are run parallel to the east side of the township, as the sections other than those in the north tier of townships bounded on the north by a correction line or base line, are now run. As we have seen they were formerly run by running the east and west sides of sections due north. But nevertheless if the survey be correctly executed every section will contain less than six hundred and forty acres.[8]

§ 30. **Sections, how numbered.**—There are thirty-six sections in each township, containing "as near as may be," twenty-three thousand and forty acres. These sections are numbered consecutively beginning with number one in the northeast corner of the township and counting westerly six sections on the north side thereof; then with number seven south of section six counting back to the east side of the township, and so on back and forth through the township until the six rows of sections with six in each row are run off, ending in the southeast corner of the township with number thirty-six. Fig. 2. In the subdivision of a township the sections are not run off in this order.[9] This matter will be considered later.[10]

In the first surveys made under the act of 1785, the sections were numbered differently. They began with number one in the southeast corner of the township and counted north on the east side thereof. This brought section six in the northeast corner of the township. Then with section seven west of section one they proceeded north in the same manner and closed with section thirty-six in the northwest corner of the township. The north side of the township contained sections 6, 12, 18, 24, 30 and 36. Fig. 4.

[8]Barnes' Fed. Code, § 4137.

[9]Manual (1919) § 181.

[10]Post ch. VI.

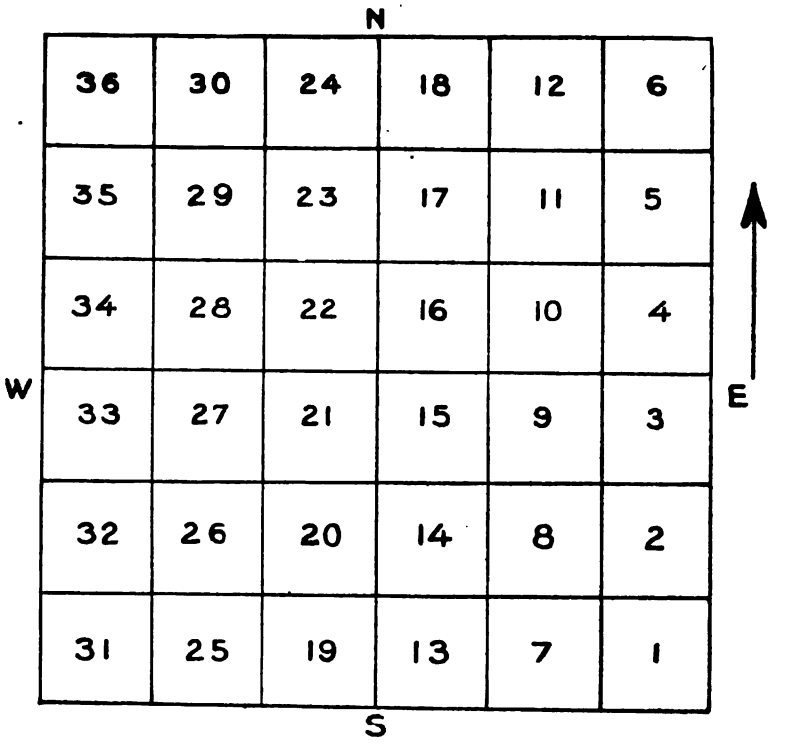


Fig. 4

§ 31. **Originally townships were seven miles square.**—As originally provided by the Continental Congress, the townships were seven miles square as shown by the act of April 26, 1785, which required the surveyor "to divide the said territory into townships of seven miles square, by lines running due north and south, and others crossing these at right angles. * * * The plat of the townships respectively shall be marked by subdivisions into sections of one mile square, or six hundred and forty acres, in the same direction as the exterior lines, and numbered from 1 to 49, * * * and these sections shall be subdivided into lots of three hundred and twenty

acres." Fig. 5. This is the first record, it is said, of the use of the terms "township" and "section." But no townships of the size indicated herein were ever run, it is said.

49	42	35	28	21	14	7
48	41	34	27	20	13	6
47	40	33	26	19	12	5
46	39	32	25	18	11	4
45	38	31	24	17	10	3
44	37	30	23	16	9	2
43	36	29	22	15	8	1

Fig 5

§ 32. **Reduction of size of township.**—On May 3, 1785, this act was amended by striking out the words, "seven miles square," and substituting the words, "six miles square," in lieu thereof. The Congress, however, failed to strike out the word, "forty-nine," and insert the word, "thirty-six." But it later amended the act by providing for the townships "6 miles square, containing thirty-six sections, of one mile each."

The first public surveys were made under this act. The townships were laid out into ranges, extending northward from the Ohio river, and were numbered from south to north, and the ranges from east to west. This survey formed a part of the state of Ohio and is called "The Seven Ranges." In making the survey only exterior boundaries of the townships were surveyed but the plats were marked showing the subdivisions into sections of one mile square. Mile corners were established on the township lines. The sections were numbered from one to thirty-six, commencing with number one in the southeast corner of the township and running from south to north in each tier to number thirty-six in the northwest corner of the township. Fig. 4.[11]

§ 33. **Surveyor-general.**—The appointment of a surveyor-general and the survey of the lands north of the Ohio river, and above the mouth of the Kentucky river, in which the title of the Indian tribes had been extinguished was provided for by the act of May 18, 1796. Under this law one-half of the townships surveyed were subdivided into sections "by running through the same, each way, parallel lines at the end of every two miles, and by making a corner on each of said lines at the end of every mile." It further provided "that sections shall be numbered, respectively, beginning with number one in the northeast section and proceeding west and east alternately, through the township, with progressive numbers till the thirty-sixth be completed." Fig. 2.[12]

§ 34. **Subdividing into half sections.**—By act of Congress May 10, 1800, it was provided that the "townships west of the Muskingum, which * * * are directed to be sold in quarter townships, to be subdivided into half-sections of three hundred and twenty acres each, as nearly as may be, by run-

[11]Manual (1902) § 2. [12]Manual (1902) § 3.

ning parallel lines through the same from east to west, and from south to north, at the distance of one mile from each other, and marking corners, at the distance of each half mile, on the lines running from east to west, and at the distance of each mile on those running from south to north. * * *" "And the interior lines of townships intersected by the Muskingum, and of all townships lying east of that river, which have not been heretofore actually subdivided into sections, shall also be run and marked. * * *" "And in all cases where the exterior lines of the townships thus to be subdivided into sections or half-sections shall exceed, or shall not extend six miles, the excess or deficiency shall be specially noted, and added to or deducted from the western and northern ranges of sections or half sections in such township, according as the error may be in running the lines from east to west or from south to north."[13]

§ 35. **Corners and quarter-lines.**—One of the most important acts of Congress was that of February 11, 1805, which directs the subdivision of the public lands into quarter-sections, and that all of the corners marked in the public surveys shall be established as proper corners of sections or subdivision of sections, which they were intended to designate, and that corners of half and quarter-sections, not marked, shall be placed as nearly as possible, "equidistant from those two corners which stand on the same line." The act further provides, "the boundary lines actually run and marked * * * shall be established as the proper boundary lines of the sections or subdivisions for which they were intended; and the length of such lines as returned by * * * the surveyor-general * * * shall be held and considered as the true length thereof, and the boundary lines which shall not have been actually run and marked as aforesaid shall be ascertained by running straight lines from the established corners to the

[13]Manual (1902) § 4.

opposite corresponding corners; but in those portions of the fractional townships where no such opposite or corresponding corners have been or can be fixed, the said boundary lines shall be ascertained by running from the established corners due north and south or east and west lines, as the case may be, to the * * * external boundary of such fractional township."[14]

§ 36. **General land office established.**—The general land office and the commissioner thereof were provided for by the act of April 25, 1812. That department took charge of all such acts and things touching or respecting the public lands of the United States, as were theretofore performed by the secretary of state, register of the treasury and of the secretary of war, "or which shall hereafter by law be assigned to the said office." All of these matters are now under the supervision of the commissioner of the general land office, who acts under the interior department.

§ 37. **Sale of public lands.**—Congress by the act of April 24, 1820, deals with the sale of the public lands in half-quarter sections, and requires that "in every case of the division of a quarter-section the lines for the division thereof shall run north and south * * * and fractional sections containing one hundred and sixty acres and upwards, shall, in like manner, as nearly as practicable, be subdivided into half-quarter sections, under such rules and regulations as may be prescribed by the secretary of the treasury; but fractional sections containing less than one hundred and sixty acres shall not be divided.[15]

§ 38. **Special rules for survey of water frontage.**—By the act of May 24, 1824, it was provided, "that whenever in the opinion of the President of the United States, a departure from the ordinary mode of surveying land on any river, lake, bayou, or water course would promote the public interest, he may direct the surveyor-general, in which district such land

[14]Manual (1902) § 5, Post ch. 3. [15]Post ch. III; Manual (1902) § 7.

is situated, and where the change is intended to be made, under such rules and regulations as the President may prescribe, to cause the land thus situated to be surveyed in tracts of two acres in width, fronting on any river, bayou, lake, or water course, and running back the depth of forty acres."[16] Under this provision the lands bordering on bodies of water in the past have been frequently surveyed. The practice does not seem to be followed to any extent at this time. By following the above rule many settlers were given riparian rights on such waters. These were considered to be and were valuable. In making resurveys of such lands the surveyor should have a copy of the special instructions given together with full notes of the survey.

§ 39. **Subdivision of sections and quarter-sections.**—By the act of April 5, 1832, Congress directed the subdivision of the public lands into quarter-quarters; that in the case of the division of a half-quarter section the dividing line should run east and west; that fractional sections should be divided under rules prescribed by the secretary of the treasury. That official accordingly directed that fractional sections containing less than one hundred and sixty acres, or the residuary portion of a fractional section, after the subdivision into as many quarter-quarter sections as it is susceptible of, may be subdivided into lots, each containing the quantity of a quarter-quarter section, as nearly as practicable, by so laying down the lines of subdivision that they shall be 20 chains wide and marked on the plat of subdivision, as are also the areas of the quarter-quarters and residuary fractions. This act also provided that the corners and contents should be ascertained as nearly as possible in the manner directed by the act of February 11, 1805.[17] This provision is the foundation for the subdivision of fractional sections into lots and is now, and

[16]Manual (1902) § 8.

[17]Post ch. III; Manual (1902) § 10.

since its enactment has been, substantially followed. Rules have been made to be followed in this division, the numbering of lots and computation of the area thereof, etc.[18]

§ 40. **Reorganization of general land office.**—The land office was reorganized under the act of July 4, 1836, which provided the executive duties of that office, "should be subject to the supervision and control of the commissioner of the general land office under the direction of the President of the United States." By the act of May 3, 1849, the department of the interior was established. That act provided, in part, "that the secretary of the interior shall perform all the duties in relation to the general land office, of supervision and appeal, now discharged by the secretary of the treasury. * * * "[19] The general land office still remains in the department of the interior. All matters pertaining to the supervision of the public lands and the survey thereof should be taken up with that department.[20]

§ 41. **System of designating corners.**—The land department of the government has devised a unique, useful, easily remembered and skillful method of designating the various corners of the several sections of a township. This system of notation was used extensively in the early surveys in keeping the notes. By it the surveyor can readily designate any corner by references to letters and numerals. As a matter of fact, the scheme is a key to all of the corners and quarter-corners of the sections of a township and also to the township corners of such township. Fig. 6. This diagram represents the key. Section corners are represented by a reference to all of the sections surrounding the corner, thus: Corner to sections 16, 17, 20 and 21. Quarter-corners are designated by using the letters on the ends of the line upon which the quarter-corner is found and then designating the particular

[18]Post ch. VIII; Manual (1902) §§230-237.

[19]Manual (1902) § 11.

[20]Post ch. III.

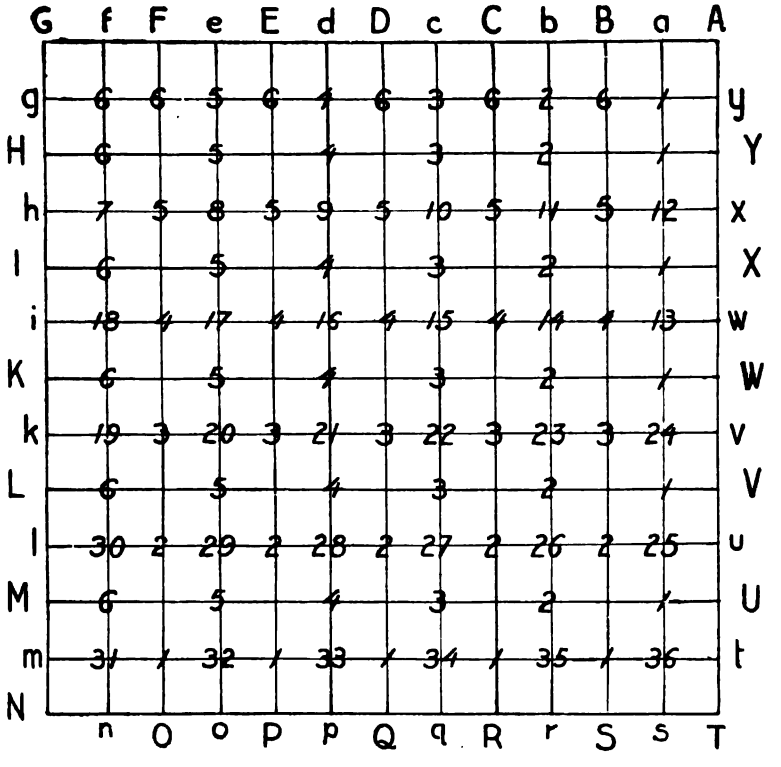


Fig. 6

quarter corner by its number on such line. Suppose it is desired to refer to the quarter-corner between sections 14 and 15. The proper designation would be: C to R at 4. Likewise the quarter corner between sections 26 and 35 would be: M to U at 2. It will be observed that the exterior section corners are represented by *capitals,* and exterior quarter-corners by *small letters.* The scheme places the letter "A" at the northeast corner of the township. The north quarter-corner of section 1 is represented by the letter, "A," and thence, in like manner, proceed westerly around the township. Interior quarter corners are marked by numerals, running from

"1" to "6", inclusive. For the quarter-corners on east and west lines begin on the easterly tier of sections. The letters run from "A" to "Y" inclusive, and the numerals from "1" to "6" inclusive.

This key can be easily learned and carried in the memory. In the earlier surveys the key was arranged differently, the letter "A" being placed in the upper left hand corner and the remaining letters followed in the opposite direction to the east across the north boundary of the township.

§ 42. **Designations of corners subdividing sections.**—Many private surveyors use a similar scheme or key to designate the corners in the subdivision of a section. This scheme is shown in Fig. 7.[21] It will be readily noticed that corners are designated in the order of their importance. First, the section corners beginning with the northwest corner of the section is referred to by the numeral "1," then northeast, southeast and southwest corners follow by "2," "3," and "4," respectively. The designation of quarter-corners begin with the north quarter-corner, represented by "5," then the east, south and west quarter-corners by "6," "7," and "8," respectively. The exterior 1/16th corners are represented by "9," "10," "11," "12," "13," "14," "15," and "16." Small letters, as a, b, c and d represent the interior 1/8th corners, and e, f, g and h the interior 1/16th corners. The center of the section is represented by a capital "C." The reader will do well to study the scheme of the key and fix it firmly in the mind. These keys will be found very useful in keeping the notes of a survey in the field and in the references to corners in the record of such survey. These two schemes for designating the various corners of townships and sections were used by the writer's father more than 50 years ago in executing surveys in Wisconsin. They are little used at this time.

§ 43. **Material of monuments.**—A very essential matter is the providing of suitable material with which to make monu-

[21] Hodgman's Manual of Surveying.

ments. This has given the government much concern from time to time. There was much slackness in that regard in executing the early surveys. Formerly corners were marked by sinking a post of timber at the proper place. If in a timbered country witness trees were marked and noted in the notes. If on the prairie, pits were dug and mounds builded. The wooden posts soon decayed; the trees were cut down or destroyed; the pits filled up; the mounds leveled, and the result was a lost corner. In some localities substantial stones were set in the ground, but this was the exception. In 1908, Congress provided for the purchase of suitable metal monuments for marking the government corners and since that date government corners have been marked by monuments made of iron or steel of a designated size and sunk well into the earth. These metal monuments are marked so as to designate the particular section.[22]

§ 44. **The contract system and a permanent corps.**—For many years and until quite recently it was the practice of the government to let by contract certain sections of the public lands to be surveyed. This did not prove very satisfactory as surveyors frequently neglected their work; did not plant proper monuments; were careless in their operations; and frequently defrauded the government by not executing the survey which they returned as executed. In 1910, Congress abolished this contract system and the interior department was authorized to employ a permanent body of surveyors, known as United States surveyors. Since that date a permanent body of surveyors has been employed by the secretary of the interior. They are public officials and their work has demonstrated the wisdom of the change.[23]

§ 45. **General rules founded on congressional legislation.**—The commissioner of the land office has deduced the following rules as a synopsis of congressional legislation pertaining to the survey of the public lands:

[22]Manual, (1919) § 242. [23]Manual, (1919) § 11.

First. The boundaries of the public lands established by a government surveyor, approved by the surveyor-general and accepted by the commissioner of the land office, are unchangeable.

Second. The original corners established by the government surveyors must stand as the true corners, "whether in the place shown by the field-notes or not."

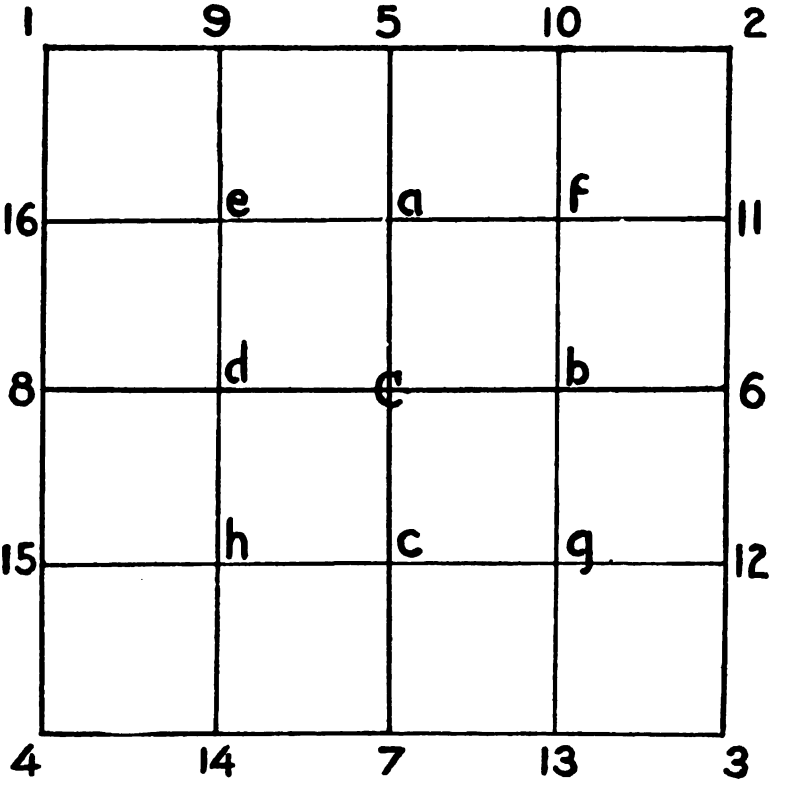


Fig. 7

Third. The quarter-quarter section corners shall be placed on the line connecting the section and quarter-section corners,

and midway between them, "except on the last half mile of the section lines closing on the north and west boundaries of a township, or on other lines between fractional or irregular sections."

Fourth. The center lines of a regular section will be straight, running from the quarter section corner on "one boundary of the section to the corresponding corner on the opposite section line."

Fifth. In a fractional section "where no opposite corresponding quarter-section corner has been or can be established," the center line thereof will be run from the proper quarter-section corner "as nearly in a cardinal direction" to the meander line or boundary of such fractional section, "as due parallelism with section lines will permit."

Sixth. Lost or obliterated corners must be restored in their original locations. Actions of surveyors resulting in changes of lines and disturbing questions of ownership are, of course, subject to review by the courts.[24]

The above rules are deductions from numerous decisions of the federal and state courts and citations of decisions will be made later in the work. Referring to Rule Third, as will be seen later in the work, the quarter-quarter section corners of sections on the north and west sides of a section will be established at exactly twenty chains, *original* measure, from the quarter-section corner.[25] For citations to decisions bearing on Rule Fifth see same chapter.[26]

States have frequently attempted legislation along lines directly in conflict with these principles and such legislation has uniformly been held contrary to the federal law and invalid.[27]

[24]Manual, (1919) § 10.
[25]Post ch. XIX.
[26]Post ch. XIX.
[27]Post ch. XIX.

CHAPTER III

SURVEYS AND SURVEYORS

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50. Field-notes, condition of delivery.
51. Surveyor-general, general duties.
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68. Deposits made by settlers to apply on lands.
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70. Settlers' rights in unsurveyed lands.

§ 46. **Generally.**—Surveyors and attorneys have frequent occasion to examine the statutes of the United States pertaining to the survey of the public lands. The former seldom have the federal statutes, and many of the latter may not have easy access to them, as they are at the present time. It has been thought that the professions will find such statutes of great use in an examination of the instructions promulgated by the land department to be followed in the execution of a given survey. Hence in this chapter we quote so much of such statutes as we deem necessary for the work. We number the same to correspond with the numbers of the Revised Statutes of the United States as they appear in Barnes' Federal

Code, 1919. The numbers will follow the quotation by reference to the foot notes, thus; (Barnes' Federal Code, § 3822). The quotations are given as the statutes stand today.

The author would call attention to the notes following the several statutes and the citations thereto. These will be in the shape of a digest of some of the important cases on surveying; and will be found useful in an examination of the authorities. However, a more extensive citation of authorities will be found later in the work. The reader is referred to the appropriate chapter.

§ 47. **Completion of survey.**—The act provides in part: "The secretary of the interior shall take all the necessary measures for the completion of the surveys in the several surveying-districts for which surveyor-generals have been, or may be appointed, at the earliest periods compatible with the purposes contemplated by law:" and the act goes on to say that "whenever the surveys and records of any such district are completed, the surveyor-general thereof shall be required to deliver over to the secretary of state of the respective states, including such surveys, or to such other officer as may be authorized to receive them, all the field-notes, maps, records, and other papers appertaining to land titles within the same; and the office of surveyor-general in every such district shall thereafter cease and be discontinued."[1]

§ 48. **Surveyors-general; powers devolve on commissioner of land office.**—"In all cases where, as provided in the preceding section the field notes, maps, records, and other papers appertaining to land titles in any state are turned over to the authorities of such states," continues the act, "the same authority, powers, and duties in relation to the survey, resurvey or subdivision of the lands therein, and all matters and things connected therewith, as previously exercised by the

[1]Barnes' Fed. Code, § 3822.

surveyor-general, whose district included such state, shall be vested in, and devolved upon, the commissioner of the general land office."[2]

§ 49. **Field-notes delivered to state—Access thereto.**—And as to access to field-notes the act provides: "Under the authority and direction of the commissioner of the general land office, any deputy surveyor or other agent of the United States shall have free access to any such field-notes, maps, records, and other papers, for the purpose of taking extracts therefrom, or making copies thereof, without charge of any kind."[3]

§ 50. **Field-notes, condition of delivery.**—Further along in the act we find: "The field-notes, maps, records and other papers mentioned in section 2219, shall, in no case, be turned over to the authorities of any state, until such state has provided by law for the reception and safe keeping of the same as public records, and for the allowance of free access to the same by the authorities of the United States."[4]

§ 51. **Surveyor-general, general duties.**—As to the duties of the surveyor-general it is provided: "Every surveyor-general shall engage a sufficient number of skillful surveyors as his deputies, to whom he is authorized to administer the necessary oaths upon their appointments. He shall have authority to frame regulations for their directions, not inconsistent with law or the instructions of the general land office, and to remove them for negligence or misconduct in office."

The act further provides that: "He shall cause to be surveyed, measured and marked, without delay all base and meridian lines through such points and perpetuated by such monuments, and such other correction parallels and meridians as may be prescribed by law or by instructions from the general land office, in respect to the public lands within his sur-

[2]Barnes' Fed. Code, § 3823.
[3]Barnes' Fed. Code, § 3824.
[4]Barnes' Fed. Code, § 3825.

veying district, to which the Indian title has been or may be hereafter extinguished."

It has been held that, "An act directing the duty of surveyors of land," is merely directory to the officer and does not make the validity of the survey depend upon his conformation to its requirements.[5]

The act further provides that: "He shall cause to be surveyed all private land claims within his district after they have been confirmed by authority of Congress, so far as may be necessary to complete the survey of the public land."

The courts lay down the rule that some latitude is allowed to the surveyor-general in the subdivision of fractional sections, containing more than one hundred and sixty acres, and he is not obliged to lay off a full quarter or half-quarter though capable of such division.[6] And it is presumed that the survey was made according to instructions.[7] Still if instructions were not followed, the recognition of the survey by the government and the sale of lands in accordance therewith will constitute a waiver of irregularities.[8] And it is the rule that original surveys, where actually made, are presumed to be correct and that line between sections 1 and 2 must be established by running a straight line between the two section corners.[9] Surveys made and officially approved are binding and can not be set aside.[10] And a survey made under government authority must stand.[11]

Continuing the act provides: "He shall transmit to the register of the respective land offices within his district general and particular plats of all land surveyed by him for each land district; and he shall forward copies of such plats to the commissioner of the general land office."

"He shall, so far as compatible with the desk duties of his

[5]Craig v. Radford, 3 Wheat. (U. S.) 594, 4 L. ed. 467.

[6]Gazzan v. Phillips, 20 How. (U. S.) 372, 15 L. ed. 958.

[7]Hedrick v. Eno, 42 Ia. 411.

[8]Hedrick v. Eno, 42 Ia. 411.

[9]Hamil v. Carr, 21 Ohio St. 358.

[10]Gibson v. Chouteau, 39 Mo. 536.

[11]Stanford v. Taylor, 18 How. (U. S.) 409, 15 L. ed. 453.

office," the act provides, "occasionally inspect the surveying operations while in progress in the field, sufficiently, to satisfy himself of the fidelity of the execution of the work according to contract, and the actual and necessary expenses incurred by him while so engaged shall be allowed: and where it is incompatible with his other duties for a surveyor-general to devote the time necessary to make a personal inspection of the work in progress, then he is authorized to depute a confidential agent to make such examination; and the actual and necessary expenses of such person shall be allowed and paid for that service, and five dollars a day during the examination in the field; but such examination shall not be protracted beyond thirty days; and in no case longer than is actually necessary; and when a surveyor-general, or any person employed in his office at a regular salary, is engaged in such special service, he shall receive only his necessary expenses in addition to his regular salary."[12]

The act provides various rules for surveys. We find: "The public land shall be divided by north and south lines run according to the true meridian, and by others crossing them at right angles, so as to form townships of six miles square, unless where the line of an Indian reservation, or of tracts of land heretofore surveyed or patented, or the course of navigable rivers, may render this impracticable; and in that case this rule must be departed from no further than such particular circumstances require."

The courts hold that as to whether "due west" in a contract means at right angles to the true meridian depends on the original survey to which reference is made and that may be shown by extrinsic evidence.[13]

Bearing on the subdivision of townships we find the act provides: "The townships shall be subdivided into sections containing, as near as may be, six hundred and forty acres

[12]Barnes' Fed. Code, § 3828.

[13]McKinney v. McKinney, 8 Ohio St. 423.

each, by running through the same, each way, parallel lines at the end of every two miles; and by making a corner on each of such lines at the end of every mile. The sections shall be numbered respectively, beginning with number one in the northeast section and proceeding west and east alternately through the township with progressive numbers till the thirty-sixth be completed."

Of course, the survey of the public lands of the United States can only be made under the authority of Congress.[14] And a state can not sell lands before they are so surveyed.[15]

With reference to marking corners the act provides: "The deputy surveyors, respectively, shall cause to be marked on a tree near each corner established in the manner described, and within the section, the number of such section, and over it the number of the township within which such section may be; and the deputy surveyors shall carefully note, in their respective field-books, the names of the corner trees marked and the numbers so made."

"Where the exterior lines of the townships which may be divided into sections or half-sections exceed, or do not extend six miles," we are told, "the excess or deficiency shall be specially noted, and added to or deducted from the western and northern ranges of sections or half-sections in such township, according as the error may be in running the lines from east to west or from north to south: the sections and half-sections bounded on the northern and western lines of such townships shall be sold as containing only the quantity expressed in the returns and plats respectively, and all others as containing the complete legal quantity."

The courts uniformly hold that monuments fixed by the government are conclusive, and that fractional sections on north and west sides of a township must be subdivided under federal laws and regulations and a state law in conflict there-

[14]Grogan v. Knight, 27 Cal. 515.

[15]Grogan v. Knight, 27 Cal. 515.

with is void.[16] And interior section corners, if lost, must be established equidistant between corresponding section corners.[17]

"All lines shall be plainly marked upon trees," we are told, "and measured with chains, containing two perches of sixteen and one-half feet each, subdivided into twenty-five equal links; and the chain shall be adjusted to a standard to be kept for that purpose."

And it is the rule that courses and distances must yield to a call for natural objects, and if a patent refer to a plat, and that plat shows a water course running through the land, the lines must correspond with such water course, though they may not correspond with courses and distances.[18] When the survey and patent or deed call for boundary down a river to its junction with another river, and thence up said river, such description must govern, though courses and distances do not agree therewith.[19] And if all the calls in a survey can not be complied with, because some are so vague and uncertain, they may be rejected or controlled by other material calls which are consistent and certain.[20] It is the settled rule that when no other figure is called for in a survey, it is to be surveyed in the form of a square and large enough to contain the full area.[21]

As to mention in the field-notes of natural objects we find: "Every surveyor shall note in his field-book the true situation of all mines, salt licks, salt springs, and mill-seats which come to his knowledge; all water courses over which the line he runs may pass; and also the quality of the lands."

It is universally held that a call for a natural object, as a river, a known stream, a spring or even a marked line, will control both courses and distances.[22] And when plats are

[16]Knight v. Elliott, 57 Mo. 317.
[17]Knight v. Elliott, 57 Mo. 317.
[18]McIvers v. Walker, 9 Cranch. (U. S.) 173, 3 L ed. 694.
[19]Brown v. Huger, 21 How. (U. S.) 305, 16 L. ed. 125.
[20]Shipp v. Miller, 2 Wheat. (U. S.) 316, 4 L. ed. 248.
[21]Shipp v. Miller, 2 Wheat. (U. S.) 316, 4 L. ed. 248.
[22]Newsom v. Pryor 7 Wheat. (U. S.) 7, 5 L. ed. 382.

returned and grants made without an actual survey the rule of construction which has been adopted, in order to settle the conflicting claims of different parties, is that the most certain calls shall control those which are less material and less certain.[23] The presumption is always in favor of every grant issued in the form prescribed by law, and the burden of proof is on him who assails such grant.[24]

The act provides for the return of the field-books and the making and return of plats of the several surveys in the following manner: "These field-books shall be returned to the surveyor-general, who shall cause therefrom a description of the whole lands surveyed to be made out and transmitted to the officers who may superintend the sales. He shall also cause a fair plat to be made of the townships and fractional parts of townships contained in the lands, describing the subdivisions thereof, and the marks of the corners. This plat shall be recorded in books to be kept for that purpose; and a copy thereof shall be kept open at the surveyor-general's office for public information, and other copies shall be sent to the places of the sale, and to the general land office."[25]

It is not necessary that the deputy who made the survey should make the plats and certify to them. That may be done by the principal surveyor.[26] It is said that selection of lands under an erroneous survey does not attach until a legal survey is made.[27] The approval of a survey and plat made therefrom import verity, and the court will not permit it to be attacked.[28] In fact, a patent can not be collaterally attacked.[29] The original descriptions of subdivisions of public lands made by the surveyor-general from the field-notes or books of the deputy surveyors, and the plats showing such subdivisions, are evi-

[23]Newsom v. Pryor, 7 Wheat. (U. S.) 7, 5 L. ed. 382.

[24]Patterson v. Jenks, 2 Pet. (U. S.) 216, 7 L. ed. 402.

[25]Barnes' Fed. Code, § 4137.

[26]Taylor v. Brown, 5 Cranch (U. S.) 234, 3 L. ed. 88.

[27]Barnard v. Ashley, 18 How. (U. S.) 43, 15 L. ed. 285.

[28]Mott v. Smith, 16 Cal. 533.

[29]Mott v. Smith, 16 Cal. 533.

dence as to their boundaries; and duly authenticated descriptions from such plats are also evidence.[30] But it is doubtful whether original field-notes of deputy surveyors are evidence of the boundaries; but if they are they must be controlled by the descriptions and plats made by the surveyor-general.[31]

§ 52. **Basis of system of survey.**—The basis of our present rectangular system of surveys is the act of May 18, 1796. Among other things this act authorized a sale of the public domain ceded by Virginia.[32]

§ 53. **Government survey conclusive.**—The descriptions of land and plat of original survey filed in the general land office, as made by the surveyor-general from the field-notes, are conclusive, and the section lines and corners, as laid down in the descriptions and plat, are binding upon the general government and upon all parties concerned.[33]

§ 54. **Official plat governs.**—It has been held that where the official plat and approved survey located premises in the northeast quarter of a section and the patent under which plaintiff claimed the land, described it as the southeast quarter of the section "according to the official plat of the survey returned to the general land office by the surveyor-general," neither parol evidence nor a private survey could be shown to establish that the premises were located in the southeast quarter of the section.[34] It will be readily seen that the words quoted in the description in the patent were given great weight by the court in the above case.

§ 55. **When lands considered surveyed.**—Lands are not surveyed lands by the United States until a certified copy of survey has been filed in the local land office.[35] The approval of the surveyor-general is necessary to constitute the survey

[30]Doe v. Hildreth, 2 Ind. 274.

[31]Doe v. Hildreth, 2 Ind. 274.

[32]Morton v. Nebraska, 21 Wall. (U. S.) 660, 22 L. ed. 639.

[33]Tolleston Club v. State, 141 Ind. 197, 38 N. E. 214, 40 N. E. 690. Horne v. Smith, 159 U. S. 40, 40 L. ed. 68, 15 Sup. Ct. 988.

[34]Chapman v. Polack, 70 Cal. 487, 11 Pac. 764.

[35]United States v. Curtner, 38 Fed. 1.

and make it complete.[36] Doubtless this ruling has a restraint on the local land office and requires them not to accept applications for entries until the survey be completed. Confusion is thus avoided.

§ 56. **Boundaries and contents of public lands—How ascertained.**—As to the contents of the several subdivisions of the public lands and the boundaries thereof, the act further provides:

"The boundaries and contents of the several sections, half-sections, and quarter sections of the public lands shall be ascertained in conformity with the following principles:

"First. All the corners marked in the survey, returned by the surveyor-general, shall be established as the proper corners of sections or subdivisions of sections, which they were intended to designate; and the corners of half and quarter-sections, not marked on the surveys, shall be placed as nearly as possible equidistant from the two corners which stand on the same line.

"Second. The boundary lines actually run and marked in the surveys returned by the surveyor-general, shall be established as the proper boundary lines of the sections, or subdivisions, for which they were intended, and the length of such lines, as returned, shall be held and considered as the true length thereof. And the boundary lines which have not been actually run and marked shall be ascertained, by running straight lines from the established corners to the opposite corresponding corners; but in those portions of the fractional townships where no such opposite corresponding corners have been or can be fixed, the boundary lines shall be ascertained by running from the established corners due north and south or east and west lines, as the case may be, to the water course, Indian boundary line, or other external boundary of such fractional township.

[36] Medley v. Robertson, 55 Cal. 396.

"Third. Each section or subdivision of section, the contents whereof have been returned by the surveyor-general, shall be held and considered as containing the exact quantity expressed in such return; and the half-sections, and quarter-sections, the contents whereof shall not have been thus returned, shall be held and considered as containing the one-half or the one-fourth part, respectively, of the returned contents of the section of which they may make part."[37]

In the state of Ohio an original surveyed township was divided into sections "by running through the same, each way, parallel lines at the end of every two miles;" and afterwards a supplementary survey was made under a subsequent act which directed that these two mile blocks should be subdivided "by running straight lines from the mile corners thus marked to the opposite corresponding corners." It was held that where the original corners in a certain block can be clearly identified, the corners of the lines of subdivisions, within the block, can not be determined by proof of the monuments, blazes or other witness found in other blocks of the township.[38] And the true line is the line actually run by the government surveyors.[39] And it is almost universally held that a meander line is not a boundary line but that it is a line run to determine the direction of the stream or shore of body of water, and also to secure data with which to use in computing the area.[40] The professions are frequently called upon to construe descriptions in deeds and otherwise and where a survey begins, "on the bank of a river," and is carried thence, "to a point in the river," the river bank being straight and running according to this line, the tract surveyed is bounded by the river. And, in fact, the court holds it is even more plainly so, when it begins at a post "on the bank of the river, thence north 5 degrees east

[37]Barnes' Fed. Code, § 4138.

[38]Ginn v. Brandon, 29 Ohio St. 656.

[39]Goodfan v. Myrick, 5 Ore. 65.

[40]Railway Co. v. Schurmeir, 7 Wall. (U. S.) 272, 19 L. ed. 74.

up the river and binding therewith."[41] The emphatic thing about the latter description is the "post." As to what is alluvium the courts hold that it means an addition to land owned by a riparian owner, gradually and imperceptibly made, through causes, either natural or artificial, by the water to which the land is contiguous.[42]

§ 57. **Deficiency.**—As to the proper manner of placing the deficiency in a fractional section the courts hold, in sections having less than the full number of acres, where the quarter-section corner can not be found, the deficiency will not be divided between the quarter-sections but must fall on the quarter directly on the township or range line. In that case there was a state law which provided that the deficiency in such cases should be taken from both quarters. Such statute being contrary to the regulations of the land department of the government must give way to the latter.[43]

§ 58. **Water line a boundary.**—In those cases where a water line is a boundary of a tract of land, that water line remains the boundary no matter how it changes by accretion, and a deed describing the land as a certain lot by number conveys the land up to the ever changing line of the stream or lake. The water line continues the boundary line and the deed carries the accretion.[44] This is the general rule but there are some apparent exceptions, but in reality not exceptions at all. In those cases where the government survey was fraudulently executed or there was a manifest error therein, this rule will not hold but the meander line in such cases may be a boundary line.[45]

§ 59. **To find center of section.**—As will be seen by reading the statutes quoted, there is but one way to proceed legally. True, there are state statutes which attempt to provide other

[41]St. Clair Co. v. Lovingston, 23 Wall. (U. S.) 46, 23 L. ed. 59.

[42]St. Clair Co. v. Lovingston, 23 Wall. (U. S.) 46, 23 L. ed. 59.

[43]Vaughn v. Tate, 64 Mo. 491.

[44]East Omaha Land Co. v. Jeffries, 40 Fed. 386.

[45]Security Land &c. Co. v. Burns, 87 Minn. 97, 91 N. W. 304.

methods of finding the center of a section but they have been declared invalid as contravening the federal statutes or of a regulation of the land department. The true rule is laid down in an Iowa case and is as follows: To find the center of a section run a straight line from the quarter-corner on the south to the quarter-corner on the north, and from quarter-corner on the east to the quarter-corner on the west or vice versa and the intersection of the two lines will be the center.[46] While this is the general rule yet in those cases where but one quarter-corner was established the surveyor is required to run a true north and south or east and west line, as the case may be, from the known quarter-corner.[47] This result is generally obtained by running a mean between the known lines, i. e. if a north and south quarter-line is required to be run, the surveyor will run a mean between the east and west boundaries of the section. And the true corner of a government subdivision is where the government surveyors placed it.[48]

§ 60. **Actual survey governs.**—Of course, the quantity of land in a patent is controlled by the boundaries, and the boundaries, as located by the government surveyor, must control, in locating the quantity of land in a patent.[49] And where a line was actually run and a division made, in an original survey of land by the government, and the line of division was marked by corners or natural objects, and such survey be established in accordance with the government field-notes, the grantee in a patent from the government will take according to such survey, notwithstanding any mistaken description as to courses and distances, or the quantity of land to be conveyed.[50]

§ 61. **Lines of division of half-quarter sections—How run?**—As to the division of half-quarter sections, the act pro-

[46]Gerke v. Lucas, 92 Iowa 79, 60 N. W. 538.

[47]Beardsley v. Crane, 52 Minn. 537, 54 N. W. 740.

[48]Beardsley v. Crane, 52 Minn. 537, 54 N. W. 740.

[49]Stonewall Phosphate Co. v. Peyton, 39 Fla. 726, 23 So. 440.

[50]Stonewall Phosphate Co. v. Peyton, 39 Fla. 726, 23 So. 440.

vides that: "In every case of the division of a quarter-section the line for the division thereof shall run north and south, and the corners and contents of half-quarter sections which may hereafter be sold, shall be ascertained in the manner and on the principles directed and prescribed by a section preceding[51] and fractional sections containing one hundred and sixty acres or upwards shall in like manner, as nearly as practicable, be subdivided into half quarter-sections, under such rules and regulations as may be prescribed by the secretary of the interior, and in every case of the division of a half-quarter section, the line for the division thereof shall run east and west, and the corners and contents of quarter-quarter sections, which may thereafter be sold, shall be ascertained as nearly as may be, in the manner and on the principles, directed and prescribed by a section preceding; and fractional sections containing fewer or more than one hundred and sixty acres shall in like manner, as nearly as may be practicable, be subdivided into quarter-quarter sections, under such rules and regulations as may be prescribed by the secretary of the interior."[52]

§ 62. **Fractional sections.**—As to the survey and numbering of lots in fractional sections the reader is referred to a subsequent chapter of this work on that subject.[53] It is the practice for the surveyor-general to lay out a fractional section so as to give one or more full one hundred and sixty acres, if possible, but he should not make an arbitrary division.[54] However, some discretion is always allowed that officer, and he is not obliged to lay off a full quarter or half-quarter section, though the fractional section is capable of so being laid out.[55] It is expected that he will bring to bear his best judgment under any circumstances, still with a view of the general good.

§ 63. **Variance in form of surveys on rivers, etc.**—"When-

[51]Ante § 56.

[52]Barnes' Fed. Code, § 4139.

[53]Post ch. 8.

[54]Brown v. Clements, 3 How. (U. S.) 650, 11 L. ed. 767.

[55]Gazzan v. Phillips, 20 How. (U. S.) 372, 15 L. ed. 958.

ever, in the opinion of the President," continues the act, "a departure from the ordinary method, of surveying any land on any river, lake, bayou, or water course, would promote the public interest, he may direct the surveyor-general in whose district such land is situated, and where the change is intended to be made, to cause the lands thus situated to be surveyed in tracts of two acres in width, fronting on any river, bayou, lake or water course, and running back the depth of forty acres; which tracts of land so surveyed shall be offered for sale entire, instead of in half quarter-sections, and in the usual manner and on the same terms in all respects as the other public lands of the United States."[56]

As to the control of sovereign rights in navigable streams it is the policy of the federal government to leave such control to the state where located.[57] Still as to the improvements of such streams and the right to build bridges over the same and the right to build dams across the same they are subject to the federal government's direction.

§ 64. **Departure from rectangular system in California.**— With reference to departures from the rectangular system of surveys in California the act provides that: "Whenever, in the opinion of the secretary of the interior, a departure from the rectangular mode of surveying and subdividing the public lands in California would promote the public interest, he may direct such change to be made in the mode of surveying and designating such lands as he deems proper, with reference to the existence of mountains, mineral deposits, and the advantages derived from timber and water privileges; but such land shall not be surveyed into less than one hundred and sixty acres, or subdivided into less than forty acres."[58]

In making a resurvey of any such tracts of land it will be

[56]Barnes' Fed. Code, § 4152.

[57]Shively v. Bowlby, 152 U, S. 1, 38 L. ed. 331.

[58]Barnes' Fed. Code, § 4155

necessary for the local surveyor to have a copy of the special instructions so given. It has been held that this statute does not apply to grants of land from Mexico to the city of San Francisco.[59]

§ 65. **Extension of public surveys over mineral land.**— With reference to the surveys of certain mineral lands and of certain other claims the act provides: "There shall be no further geological survey by the government, unless hereafter authorized by law. The public surveys shall extend over all mineral lands; and all subdividing of surveyed lands into lots less than one hundred and sixty acres may be done by county and local surveyors at the expense of claimants; but nothing in this section contained shall require the survey of waste or useless lands."[60]

§ 66. **When survey may be had by settlers of township.**— Under certain conditions settlers may have certain tracts of land surveyed upon application and the deposit of the expense of such survey, and we find: "When the settlers of any township, not mineral or reserved by the government, or persons or associations lawfully possessed of coal lands and otherwise qualified to make entry thereof, or when the owners or grantees of public lands of the United States, under any law thereof, desire a survey made of the same under the authority of the surveyor-general and shall file an application therefor in writing, and shall deposit in a proper United States depository to the credit of the United States a sum sufficient to pay for such survey, together with all expenditures incident thereto, without cost or claim for indemnity on the United States, it shall be lawful for the surveyor-general, under such instructions as may be given him by the commissioner of the general land office, and in accordance with law, to survey such township or such public lands owned by said grantees of the government, and make return thereof to the general and proper

[59]Burk v. Howe, 171 Cal. 24, 152 Pac. 434.

[60]Barnes' Fed. Code, § 4151.

land office; provided, that no application shall be granted unless the township so proposed to be surveyed is within the range of the regular progress of the public surveys embraced by existing standard lines or bases for township and subdivisional surveys."[61]

Evidently the lands to which reference is made herein are omitted lands. This may happen in the case of swamp lands, later reclaimed, or of islands, not in the first instance surveyed and in other ways. It has been held to give government jurisdiction to make surveys of such omitted lands (islands in this case) that there must have been such omitted islands, and the land must not have been conveyed by the government prior thereto.[62] Questions have frequently arisen as to whether or not an island adjacent to a conveyed shore should be considered subject to survey under this provision or whether the island passed to the owner of the shore.

§ 67. **Deposit for expenses deemed an appropriation.**—It was quite natural that the government should be protected as to the expenses of the survey made under the provisions referred to in the next section above, and we find: "The deposit of money in a proper United States depository, under the provisions of the preceding section, shall be deemed an appropriation of the sum so deposited to be placed to the credit of the proper appropriations for the surveying service; but any excesses in such sums over and above the actual cost of the surveys, comprising all expenses incident thereto, for which they were severally deposited, shall be repaid to the depositors respectively."[63]

§ 68. **Deposits made by settlers to apply on lands.**—If, after such survey be made, the party applying for a survey of such lands, purchases said lands from the United States, then

[61]Barnes' Fed. Code, § 4144. .

[62]Webber v. Pere Marquette Boom Co., 62 Mich. 626, 30 N. W. 469.

[63]Barnes' Fed. Code, § 4145.

the sums so deposited may be used in part payment for said lands, and we find this provision: "Where settlers, or owners or grantees of public lands make deposits in accordance with the provisions of section 2401, as hereby amended, certificates shall be issued for such deposits which may be used by settlers in part payment for the lands settled upon by them, the survey of which is paid for, out of such deposits, or said certificates may be assigned by indorsement and may be received by the government in payment for any public lands of the United States in the states where the surveys were made, entered or to be entered under the laws thereof."[64]

§ 69. **Modification of lines in Nevada.**—Owing to local conditions in the state of Nevada special provisions have been made for the survey of certain lands therein and we find: "In extending the surveys of the public lands in the state of Nevada the secretary of the interior may vary the lines of the subdivisions from a rectangular form, to suit the circumstances of the country."[65]

§ 70. **Settlers' rights in unsurveyed lands.**—It is the policy of the government to protect settlers on lands not yet surveyed, and after a survey thereof, to make grants of such lands to them on compliance with the laws, even as to the school lands, and we find: "Where settlements with a view to preemption or homestead have been, or shall hereafter be made, before the survey of the lands in the field, which are found to have been made on sections 16 or 36, those sections shall be subject to the claims of such settlers, etc."[66]

[64]Barnes' Fed. Code, § 4147.
[65]Barnes' Fed. Code, § 4153.
[66]Barnes' Fed. Code, § 4096.

CHAPTER IV

SOME GENERAL OBSERVATIONS

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§ 71. **Generally.**—In this chapter the author gives some general observations, and in so doing, desires to emphasize some commonplace and simple ideas, and thus impress the local surveyor with their importance. We are all prone to overlook small things and fail to give them due weight. A surveyor finds it necessary to relocate a lost or obliterated corner. He should not fail to carefully examine the field-notes of the original survey, if in existence. By such examination he may find noted therein a line-tree, the crossing of a small creek or stream, the approach to an abrupt ledge, or the sudden entry into a swamp, or other natural feature, as the line approaches the now lost or obliterated corner. The distances to the intersections of the various natural features, along the line, should be, and probably will be, found noted in the field-notes. It will at once be seen that the surveyor can use these natural features as permanent monuments of the first order in relocating the lost corner. True, they may be some distance from such corner but they are, in a way, certain and immovable and will furnish the surveyor at least one

initial point from which to begin his relocation work. He will continue in the same research on the line beyond the lost corner and find another initial point between which and the former he may measure and, by proportion, relocate the lost corner under the rules prescribed.

Before placing too much reliance on the natural features, such as streams, ledges, rocks, swamps, or otherwise, the surveyor should carefully inspect the surroundings and make certain such features as are in substantially the same position as they were when the original survey was made. So, also, he must be sure that the line run by him along which the measurements are being taken is in practically the same place as the original line. His observations should be noted in his record of the survey. These precautions are fruitful of evidence of the accuracy of the work and, with other evidence, will confirm it.

§ 72. **Applicable to all systems of survey.**—What is said in this chapter is applicable to all systems of survey, whether the rectangular or the old haphazard metes and bounds system used in the surveys of much of the lands in the original thirteen states since they do not necessarily refer to any system and are so general that they may be found useful in all surveys. The great difficulty in retracing the lines of ancient surveys under the metes and bounds system is apparent to everyone. The surveyor is first confronted with not even a known initial point, frequently, from which to begin work, to say nothing about a second initial point. Then more than likely the original survey was full of errors in courses and distances and in taking and recording notes of the survey. How important, then, is it that the surveyor search out every particle of evidence bearing on the location of the lost line, or lost corner to the end that it may be relocated in its original position.

He will regard ancient fences, old stone walls reputed to have been built on the line sought, since they are recognized

as monuments of the position of the original line and more reliable than courses and distances. He should gather proof of the original locations of such ancient fences, walls, or other objects, and may, and should, take the statements of old people who have known the line many years and may receive the declarations of persons long since deceased, as to the location of such corner or line, who were in a position to know the location thereof, and which declarations were made before any controversy arose. Similarly declarations against the interests of the party making may, and should, be taken.[1]

§ 73. **Magnetic needle not now used.**—The rules laid down by the commissioner of the general land office in 1902, and since in force, prescribe that all government surveys shall be made "with instruments provided with the accessories necessary to determine a direction with reference to a true meridian independently of the magnetic needle."[2] The instrument used for such purpose is the solar compass and lines run by such instrument are astronomically run. Such instrument is not affected by surrounding conditions, as is the magnetic needle.

§ 74. **Government will not issue instructions to local surveyors.**—Disputes arising over uncertain or erroneous locations of corners, originally established by the government, are to be settled by the proper local authorities and the government will not issue instructions to local surveyors. The local surveyor, however, may obtain circulars from the government which will aid him materially in retracing lost or obliterated corners or retracing lost or obliterated lines. The circular of 1909, is substantially given in this work under the heading, "Lost or Obliterated Corners and Subdivision of Sections."[3]

§ 75. **Line-trees.**—In a timbered country the surveyor will find line-trees, which, after verification, he can use to great advantage in relocating old lines or lost or obliterated corners.

[1]Gillett on Indirect and Collateral Evidence, 132-3.

[2]Manual, (1902) §§ 32-391.

[3]Manual (1902) § 398; Post ch. XV.

This important evidence should not be overlooked. The nearer the line-tree to the lost or obliterated corner, the more valuable as an aid in such relocation. Measurements for such purpose, of course, must be proportional to the original survey. Trees so intersected by the line are marked by two chops or notches cut on the sides facing the line without any other marks.[4]

§ 76. **Adjusting instruments and testing chain or tape.**—The surveyor should frequently adjust and test his instrument and make a record thereof. If he be compelled to rely on the needle largely he should have a known true north and south line for such testing. He should use his instrument both direct and reverse in making the test. So, also, when he is retracing lines, he should test his instrument with reference to other lines in the vicinity, run by the same government surveyor, at the same time. The testing of the chain or tape is of prime importance and should be made frequently. If found to be too long it should be shortened to the exact length; if too short, it should be lengthened accordingly. A record should always be made of these testings and of the results. Of course, by a proportional measurement the same result may be obtained even with a tape too long or too short but it will be found more satisfactory to use a tape or chain of the correct length in any event.

§ 77. **Swearing in assistants.**—Before entering upon a survey the chainmen, flagmen and other assistants should be sworn to faithfully perform their duties according to law and a record thereof made. In litigated matters this is quite essential. It adds to the weight to be given to their testimony. Moreover, it lends dignity to the business. In some localities it is imperative.

§ 78. **Proportional measurements.**—It is seldom that the recent measurement of a line will agree with the original

[4]Manual (1902) § 42; Post ch. XV.

measurement, even though the chain or tape be adjusted to the correct length. Hence, in retracing a lost or obliterated line or re-establishing a lost or obliterated corner, the surveyor should always fix the line or corner by proportional measurements. In no other way can he approach accuracy. This is the universal instruction of the land department. Moreover, it is a universal principle laid down by the courts in decisions. If this practice be followed carefully the length of the chain or tape would be immaterial.

§ 79. **Government corners preserved by landowners.**—A government corner, which has been preserved by acts of landowners, or which can be established from the memory of those who knew and can recollect its location, is not a lost corner. True, the surveyor can only fix the location of such corner by extrinsic evidence. Such evidence may consist of the declarations of persons, since deceased, who may have known the place of the original location; or it may consist of the evidence of persons, who may have built fences along the original line or to the original corner and which fences are still standing, or if destroyed, that new ones have been built in the same place as the original fence.[5]

§ 80. **Certainty of evidence.**—The surveyor should only accept extrinsic evidence of the location of an obliterated line or corner when the same can not be fixed by finding the post originally set, or by a reference to bearing trees, still standing, or stumps of such trees, or similar reliable data. Should he resort to extrinsic evidence he must be certain it is reliable, and, if it is sought to fix the line or corner by showing the location of an ancient fence, the surveyor must be certain such fence was, or fences were, built on the true line or to the true corner and so known to be by the person giving testimony. If it is sought to show the location of the true line or corner by the declarations of a person since deceased, the surveyor must

[5]Post ch. XVI.

make certain that such declarations were made by a person in a position to know the location of the original line or corner, and were either against his interest at the time or such person was a public officer charged with some duty in the matter, such as a surveyor who had, prior thereto, located such line or corner and knew the true location thereof.[6]

§ 81. **Searching for obliterated corners.**—Many surveyors neglect to make a thorough search for evidence of the location of the original corner. This should not be permitted. Frequently unmistakable evidence of the location of the original corner can be found by a careful use of the spade in the place where the corner is supposed to be. Those who make the search should do so with great care. The surface of the ground should be shaved off for a considerable space and those doing the work should keep a sharp lookout for decayed parts of the original post as the soil is shaved down. It is not infrequent that the location of the corner post is traced by a slight discoloration of the soil at the particular point where the post was planted. Upon making such discovery the surveyor will continue excavating for some distance and trace the location downward by following the discoloration. The point so located by him should be tested and proved by other means and by a proportional measurement to other points.

§ 82. **Field-notes and records.**—In all cases the surveyor should keep a full record of all notes of surveys made. All corners should be marked by a permanent post, or better still a dressed stone or iron rod securely set at the exact corner. The location of the corner should be marked, where possible, by bearing trees or other natural object. The notes should indicate the material used in marking the corner; also the bearings, distances to trees or other objects, the size and kind of tree or other object, and the markings. All line-trees should be marked by a blaze on each side of the tree, facing

[6]Post ch. XVI.

the line. The size and kind of tree should be noted; also its distance from the point on the measured line to the adjacent corners. Streams, lakes, ponds and other natural features should be noted with distances from the adjacent corners; width of stream or pond, and in case of a stream its course should be given. Names of streams or lakes; also hills should be noted. By a careful observation of these rules future surveys can be made with practical accuracy and certainty.

§ 83. **Harmonizing calls.**—If possible, the surveyor in retracing an obliterated line, should harmonize all the calls. Frequently he will not be able to do this and it may be necessary to regard some of the calls and disregard others. Usually fixed monuments control courses and distances, though instances are sighted in this work where the court, owing to an extraordinary situation, preferred the course and distance over the fixed monuments.[7] The chief lines of a survey, such as a township or range line, will be preferred over section lines closing thereon.[8] This is on the theory that greater care was used in running the chief lines; also that closing lines are not generally run with that degree of accuracy used in running other lines. In all such cases great care should be exercised, the work should be tested and the surveyor should be certain of his ground. All of the facts should be carefully noted in the record.

§ 84. **Integrity of surveyor.**—The surveyor should at all times keep his skirts clear and not be influenced one way or another in the face of facts which convince him that a certain course is wrong. He should be as free from prejudice or influence favorable to one or the other party, as a judge on the bench or a juror in the box. His skill, judgment and advice should always be for the right. He should establish corners and run lines according to the data or according to extrinsic

[7]Post ch. XV; Post ch. XIX.
[8]Post ch. XV.

evidence gathered by him. His inquiry should be: What is the right of the matter under all of the circumstances? Practically he is an arbiter between the parties. He should not destroy any evidence of the location of corners or lines, or cover up anything which may lead to a correct survey of the line in question. When he so acts, his services will be sought for and he will be honored greatly in the localities where he may have been engaged.

§ 85. **Originality.**—The surveyor will have frequent opportunity to exercise his original ideas, extricating himself from tight places. No one can tell him in advance what to do in the hundreds of difficult and perplexing problems that arise in every day practice. He must carefully consider all of the surrounding circumstances and bring into play his accumulated knowledge, applying that knowledge and past experiences to the question. Those, with little or no initiative, will fail, but he who can apply old principles to new problems will succeed. This is not only true of engineering but also of land surveying, and especially in the tracing of lost or obliterated lines or re-establishing lost corners. Questions which call for large common sense, good judgment and originality, and to which no hard and fast rule can apply will arise daily. Here is the real surveyor's opportunity.

§ 86. **Importance of instructions to original surveyors.**—The importance of a knowledge of special or other instructions which may have been given by the surveyor-general to his deputies prior to the original survey can not be emphasized too strongly. No surveyor should attempt to make a resurvey of a section without full government notes and be in possession of such instructions. This is especially necessary in re-establishing lost or obliterated corners or retracing lost or obliterated lines, in as much as, in the early surveys, the instructions were not always uniform, and, in some cases were erroneous. Furthermore recent instructions are much more

exacting than those issued in early surveys. 'Various rules as to standard parallels, double and triple corners have been promulgated from time to time. A full knowledge thereof by the surveyor will enable him to approach accuracy, whereas, without such knowledge he can not hope to do so. For instance, when by reason of impassable objects or other reasons the south boundary of a township could not be established, the "Instructions for the Survey of Public Lands" provide that the lines of subdivisions of the townships shall be run from north to south, thus throwing the excess or deficiency on the west and south sides of a township.[9] Similarly the division lines may be required from west to east, where the east boundary of a township can not be established, thus throwing the excess or deficiency on the north and east sides of the township.[10] How important, that the local surveyor should possess this information, will be apparent.

§ 87. **Double corners.**—Prior to 1836, section lines, under instructions of the surveyor-general, were required to meet the section corners on town and range lines of the south and east sides of a township but not on the north and west sides thereof. This rule produced what is known as "double corners," on all boundaries of townships. This practice was followed in the execution of some surveys as late as the year 1854, and possibly later. Other instances are mentioned in this work where triple corners were established. Under present instructions "double corners" are found, as a general rule, only on base and correction lines.

§ 88. **Old isolated surveys.**—The surveyor-general has frequently found it necessary to order surveys of isolated tracts of land, situated far from other surveyed lands. Subsequently the intervening and surrounding lands are ordered surveyed into township and sections. It will be evident, that, in all

[9]Manual (1902) § 149.
[10]Manual (1902) § 149.

probability, all of the townships bounding on such isolated surveys will be fractional townships, and will be most irregular in their boundaries. Likewise the exterior sections of such townships will be fractional and irregular in form. The land department has formulated rules for making such surveys, and the local surveyor should become familiar with such rules before attempting a resurvey of such townships or any part thereof.[11] He should possess full government notes of both surveys in order to distinguish the particular corner desired. Fig. 17.

§ 89. **Tests by retracing lines in immediate vicinity.**—The rules promulgated by the surveyor-general to his deputies about to subdivide a township into sections, requires them, first of all, to carefully retrace the south and east sides of section 36, in the township to be subdivided, and adjust his instrument and chains or tapes with reference to those lines, to the end that he may the more accurately run the subdivision lines.[12] If this be thought necessary in making the initial survey, how much more so will it be necessary for the local surveyor to carefully retrace at least one northerly and one easterly line in the vicinity, run in making the original survey. In this retracing the surveyor should adjust his instrument and chains and tapes to correspond with the former survey. This will enable him to run the desired lines approximately accurate. He will not then be working wholly in the dark.

[11]Manual (1902) §§ 265-273; Manual (1919) § 224; Post ch. VI.

[12]Post ch. VI.

CHAPTER V

BASE LINES—PRINCIPAL MERIDIANS—TOWNSHIPS

Sec.
90. Generally.
91. Initial points of survey.
92. The base line.
93. Principal meridian.
94. Standard parallels.
95. Guide meridians.
96. Township exteriors.
97. Positions of base lines and principal meridians.
98. The sixteen township blocks.
99. Forming townships.
100. Double corners on standard parallels.
101. Dividing blocks into townships south of the base line.

§ 90. **Generally.**—All surveys must have initial points. The rectangular system is no exception to the rule. Practically all of the lands in the thirteen original states were surveyed at one time or another but without regard to any system or uniformity. Frequently large tracts of land were granted by the British government in an early day to prominent individuals. These tracts were surveyed in very irregular pieces, having regard to water courses, lakes, mountains or other natural features of the country. Of course an initial point was established, so to speak, for each tract, from which the survey for that tract was made. No regular system of keeping notes was followed. Frequently they were never made of record and were left with the owner of the tract or some private surveyor and ultimately lost. As a result, in many localities in those states, it is practically impossible to procure data from which original lines and corners may be re-established.[1]

Furthermore the individual grants were surveyed without regard to other grants lying adjacent thereto. Hence, as a matter of fact, there were as many systems of surveys as

[1]Post ch. XXVI.

there were grants. This is the case with the New England states, New York, Pennsylvania, and the states lying along the Atlantic seaboard, the thirteen original states. Efforts have been made in many, if not all of those states, to tie the initial points by triangulation or astronomically so that such initial points may be of record and relocated. Those who are familiar with the rectangular system find it difficult to understand how the owners of lands, run out in the early history of the country, are able to trace their boundaries with any degree of satisfaction. In fact, they can not so retrace them generally.

These unsatisfactory and varied systems were the source of much vexatious litigation, and our great statesmen of that early day evolved the rectangular system of surveys, and the Continental Congress provided for the survey of all of the public lands by that system under and by virtue of the act of April 26, 1785. Under this system any tract of land can be readily, and understandingly described by the use of a few words.

§ 91. **Initial points of survey.**—Under the rectangular system of surveys, as we have seen, an initial point from which the survey is to be made must first be fixed.[2] This point should be located with great care, and, if the topography of the country permit, it should be established on some prominent elevation, from which points at considerable distances may be observed. Permanent monuments, preferably of copper set in rock, with bearings to natural objects, such as a rock, should be planted at the point selected and reference thereto at length entered in the field-notes. The point so established will be the point of intersection of the base line with the principal meridian of that survey.[3]

§ 92. **The base line.**—From the point so established the surveyor will run a base line, using a solar compass, on a parallel of latitude, and plant permanent monuments thereon every

[2]Ante § 90.
[3]Ante § 21.

half mile. These monuments should be marked according to rules laid down by the surveyor-general for establishing township, section and quarter-section corners on the base line. This line and the measurements thereon should be run with great care. It should be rerun and remeasured in order to detect any mistake in the work and reduce to a minimum any possible error in measurement or astronomical calculations.[4]

The base line should be run on a true parallel the entire width of the tract to be surveyed, and, if possible, along the southern boundary of such tract. The entire survey is based on this line and made with reference thereto. The townships are numbered from such base, north and south as the case may be.[5]

§ 93. **Principal meridian.**—From the initial point established on the base line and referred to above, the surveyor will run the principal meridian, with a solar compass, due north or south, as the case may be, with great accuracy.[6] He will establish and mark permanent monuments thereon, each half mile for the entire length. These monuments should be marked in the manner required by the government for marking township, section and quarter-section corners on principal meridians. It is important that this line should be on a true meridian and should meet the north pole, if prolonged. The work of the surveyor should be thoroughly tested by all manner of means in order to reduce possible errors to a minimum. The base line, of course, must be run on a true parallel of latitude. From the principal meridian the ranges are numbered east or west, as the case may be, throughout the survey.[7]

§ 94. **Standard parallels.**—Standard parallels, also termed correction lines, shall be run east and west from the principal meridian, at intervals of twenty-four miles north and south of the base line, and on a true parallel of latitude.[8] These

[4]Ante § 23.
[5]Manual (1902) §§ 114-122.
[6]Ante § 24.
[7]Manual (1902) §§ 123-124.
[8]Ante § 27.

lines should be run with as great care as the base line. Monuments will be established thereon every half mile and marked in the same manner required for marking township, section and quarter-section corners. From the standard parallels, surveys of new townships north or south thereof, as the case may be, will be made. In fact, standard parallels are base lines for the townships lying north thereof. They counteract or correct the convergence of the meridian and leave the townships "as near as may be" thirty-six square miles.

In many of the old surveys, made prior to 1850, these standard parallels were run a distance of thirty, thirty-six, and even sixty miles apart and from the base line. This fact should be taken into consideration by the local surveyor in making subsequent surveys.[9]

§ 95. **Guide meridians.**—Guide meridians are extended north from the base line and standard parallels at intervals of twenty-four miles east and west from the principal meridian.[10] They are run in the same manner as is the principal meridian and with the same degree of accuracy. All monuments must be marked and reference thereto made in the field-notes.

In certain cases such guide meridians are required to be run south from the base or correction lines. In that event they will be initiated at properly established corners on such base or correction line, marked as "closing corners." Why this should be done will be evident.

In some of the early surveys, guide meridians were placed at intervals greatly in excess of 24 miles. Later, new guide meridians, in certain cases, were run pursuant to direction of the surveyor-general and local names assigned to such new guide meridians, e. g., "Grass Valley Guide Meridian."[11]

§ 96. **Township exteriors.**—After the base line, principal meridian, standard parallels and guide meridians have been run, the twenty-four square mile tracts are surveyed into townships, beginning with those in the south-western township.[12]

[9]Manual (1902) §§ 125-126.

[10]Manual (1902) § 130; ante § 26.

[11]Manual (1902) §§ 127-128.

[12]Manual (1902) § 130; ante § 25.

The meridional boundaries of townships have precedence in the order of survey over the latitudinal boundaries. They are run from the township corners on the base or correction lines, theretofore established, from south to north on true meridians. Permanent corners are set every half mile thereon.

The latitudinal boundaries are run from township corners theretofore established on the principal or guide meridians from east to west on random or trial lines and corrected back on true lines. The falling of the random, north or south of the township corner to be closed upon, is carefully measured, and, with the resulting true return course, are duly recorded in the field-notes.

If the random so run should intersect the township line north or south of the corner, or fall short of or overrun the length of the south boundary of the township by more than three chains (due allowance being made for convergence) said random, and if necessary, all of the exterior boundaries of the township, should be retraced and remeasured to discover the error.

In running random lines from east to west, temporary corners are set at intervals of 40 chains, and permanent corners established upon the true line, corrected back in accordance with the instructions of the land office, thereby throwing the excess or deficiency against the west boundary of the township, as required by law.

Whenever practicable, the exterior boundaries of townships belonging to the west range in a tract or block twenty-four miles square, are first surveyed in succession, through the range, from south to north; and, in a similar manner, the other three ranges are surveyed in regular sequence.

Wherever impassable obstacles occur and the foregoing rule can not be followed, in extending the south or north boundaries of a township to the west, such boundaries are run west on a true line, allowing for convergency on the west half mile; and from the township corner established at the

end of such boundary, the west boundary is run north or south as the case may be.

In extending south or north boundaries of a township to the east, where the southeast or northeast corner can not be established in the regular way, the same rule will be observed, except that such boundaries will be run east on a true line, and the east boundary run north or south, as the case may be. Allowance for convergency must be made when necessary.[13]

§ 97. **Positions of base lines and principal meridians.**—As we have seen, the rectangular system of surveying was first used in the survey of the public lands of the United States, in the state of Ohio. The boundary line between the states of Ohio and Pennsylvania, latitude 80° 32′ 20″ west of Greenwich, known as "Ellicott's line," is the meridian to which such survey was referred. The township east of the Scioto, in the state of Ohio, are numbered from south to north, commencing with number one on the Ohio river. The ranges are numbered from east to west, beginning with number one on the east boundary of the state, termed the "First Meridian," except in the tract designated "U. S. Military Land," in which the townships and ranges are numbered, respectively, from the south and east boundaries of said tract.

Since the organization of the system of rectangular surveying down to the year 1920, numbered and locally named principal meridians and base lines have been established, as shown by the following tabular statement furnished by the commissioner of the general land office. These principal meridians and base lines may be found by examining various official state maps; also by examining the large map published by the land office.[14]

§ 98. **The sixteen township blocks.**—We have seen that the first operation in the survey of a considerable tract of land, under the rectangular system of surveys, is to run a principal meridian due north and south and a base line on a

[13]Manual (1902) §§ 130-134.

[14]Manual (1902) §§ 289-290; Manual (1919) § 141.

true parallel initiated thereon.[15] From these two lines, which are run with the greatest care, and astronomically, the entire survey is initiated. Guide meridians, initiated from the base line, are run every twenty-four miles due north.[16] Standard parallels or correction lines, initiated every twenty-four miles from the principal meridian, are run parallel with the base line.[17] It will be seen that these lines form a tract approximately twenty-four miles square. They are, in fact, twenty-four miles on the west, south and east sides thereof, but, owing

MERIDIANS AND BASE LINES OF THE UNITED STATES RECTANGULAR SURVEYS

Meridians	Governing Surveys Wholly or in Part in States of	Long. of Prin. Md. West from Greenwich			Lat. of Base Line N. from Equator		
		+	′	″	+	′	″
Black Hills	South Dakota	104	03	00	44	00	00
Boise	Idaho	116	24	15	43	22	31
Chickasaw	Mississippi	89	15	00	34	59	00
Choctaw	Mississippi	90	14	45	31	54	40
Cimarron	Oklahoma	103	00	00	36	30	00
Copper River	Alaska	145	18	42	61	49	11
Fairbanks	Alaska	147	38	33	64	51	49
Fifth Prin.	Arkansas, Iowa, Minnesota, Missouri, North Dakota and South Dakota	91	03	42	34	44	00
First Prin.	Ohio	84	48	50	41	00	00
Fourth Prin.	Illinois	90	28	45	40	00	30
Fourth Prin.	Minnesota and Wisconsin	90	28	45	42	30	00
Gila and Salt River	Arizona	112	17	25	33	22	40
Humboldt	California	124	08	00	40	25	12
Huntsville	Alabama	86	34	45	35	00	00
Indian	Oklahoma	97	14	30	34	30	00
Louisiana	Louisiana	92	24	15	31	00	00
Michigan	Michigan	84	22	24	42	26	30
Mount Diablo	California and Nevada	121	54	48	37	51	30
Navajo	Arizona and New Mexico	108	32	45	35	45	00
New Mexico Prin.	Colorado and New Mexico	106	53	40	34	15	25
Principal	Montana	111	38	50	45	46	48
Salt Lake	Utah	111	54	00	40	46	04
San Bernardino	California	116	56	15	34	07	10
Second Prin.	Illinois and Indiana	86	28	00	38	28	20
Seward	Alaska	149	21	53	60	07	26
Sixth Prin.	Colorado, Kansas, Nebraska, South Dakota and Wyoming	97	23	00	40	00	00
St. Helena	Louisiana	91	09	15	31	00	00
St. Stephens	Alabama and Mississippi	88	02	00	31	00	00
Tallahassee	Florida	84	16	42	30	28	00
Third Prin.	Illinois	89	10	15	38	28	20
Utah	Utah	109	57	30	40	26	20
Ute	Colorado	108	33	20	39	06	40
Washington	Mississippi	91	09	15	31	00	00
Willamette	Oregon and Washington	122	44	20	45	31	00
Wind River	Wyoming	108	48	40	43	01	20

35 Meridians and 32 Base Lines.

to the convergency of the meridians, they fall short considerable of that distance across the north side. This deficiency differs with the distance north or south of the equator. The divergence for six miles, between 46 and 47 degrees north

[15]Ante §§ 91-2.

[16]Ante § 26.

[17]Ante § 27.

latitude, is about 76 links. That is the north side of a township in that latitude is about 76 links shorter than the south side. The guide meridians are run with the same degree of care as are the base lines and principal meridians.[18]

§ 99. **Forming townships.**—As we have seen, after the principal meridian and base lines have been run, the government surveyor is required to run parallelograms of approximately twenty-four miles square, having reference to such principal meridian and base lines. The next duty of the surveyor is to run out such parallelograms into sixteen townships, of approximately six miles square. To do this the surveyor begins in the southwest township of the tract and the southeast corner of the township to be run out.[19] Referring to Fig. 8, the surveyor will locate the township corner at the southeast corner of such township at "a," as previously established. He should test and adjust his instrument and chain by retracing three lines run in the initial survey of base lines standard parallels, and guide meridians. He will then run due north six miles, planting corners on such line at each half mile. At "b" he will establish the northeast corner of the first township—the proper township corner, and permanently mark it. He will then run a random line from "b" to "c," correct back, plant corners each half mile on the true line, until he reaches the township corner at "d," which of course, is the same as "b." From "d" he will run due north, and plant corners each half mile until he reaches "e." He will then run a random line from "e" to "f," correct back and establish corners each half mile on the true line. He will continue in like manner until he reaches the point "k" on the first standard parallel north.[20] Any excess or deficiency should be thrown on the last half mile, thus making the last quarter-corner 40 chains north of the last interior section corner. In fact all closing lines on the north or west sides of the township

[18]Manual (1902) § 127.
[19]Manual (1902) § 133.
[20]Manual (1902) §§ 130-132.

shall have the last quarter-corners planted at 40 chains (government measure) to the north or west, as the case may be, of the last interior section corner, thus throwing any excess or

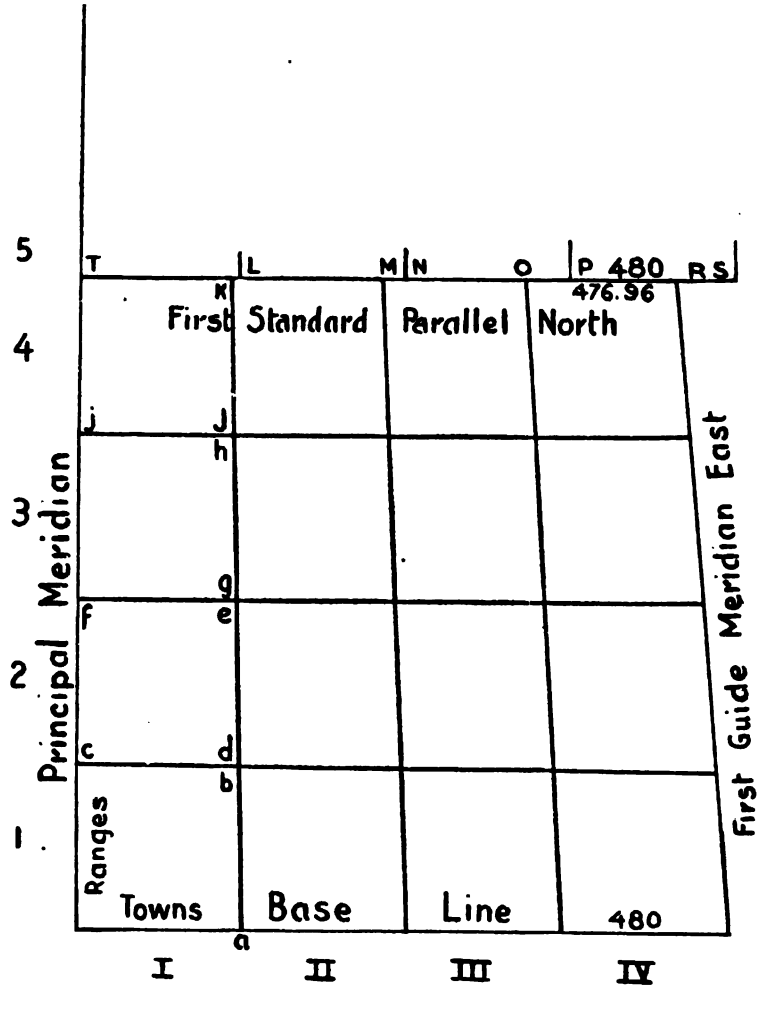


Fig. 8

deficiency to the tier of quarter sections on the north and west sides of the township.[21]

[21]Manual (1902) § 132.

§ 100. **Double corners on standard parallels.**—It will be noted that the range lines are run due north in subdividing into townships. Hence each township will fall short of six miles in width at the top, depending on the distance from the base line or standard parallel. In the latitude of 46¼ degrees, the first tier of townships will, as we have seen,[22] fall short about 76 links; the second approximately 1.52 chains; the third about 2.28 chains, and the last about 3.04 chains. Therefore, double corners will be established on all correction lines, or standard parallels.[23] These figures are approximate only. The northeast corner of township 4, range 1 east, will be planted at "k." The southeast corner of township 5, range 1 east, will be planted at "l," about 3.04 chains, on the correction line, to the east of corner "k." The surveyor is required to measure the distance between the two double corners in all cases and enter it in his notes. Fig. 8.

In the latitude of 42° 39′ 7″ the corner at "k" would be 2.70 chains west of the corner at "l"; and the corner at "m" would be 5.40 chains west of the corner at "n"; and the corner at "o" would be 8.10 chains west of the corner at "p"; and the corner at "r" would be 10.80 chains west of the corner at "s." The farther north the greater will be the convergency, and the farther south (north of the equator) the less will be the convergency.

§ 101. **Dividing blocks into townships south of the base line.**—It frequently happens that government surveyors are required to run out blocks of townships, lying south of the base line, that is, the base line instead of running along the south boundary of the tract to be surveyed, runs through the tract. In such cases the townships run out are known as "south" townships. When such is the case, the surveyor will first run the principal meridian, planting permanent corners thereon every half mile (40 chains). Then at a point thereon and twenty-four miles south of the base line, the surveyor will run

[22] Ante § 98.
[23] Ante § 87.

the first standard parallel or correction line south, planting permanent monuments thereon every 40 chains. This correction line forms the base of the townships to the north and from which the townships are surveyed northerly the same as the townships lying north of the regular base line. The base line forms the closing boundary of the townships lying south thereof. Their boundaries close on such base line. The excess or deficiency is thrown on the north and west sides of the township, as in the case of townships lying to the north

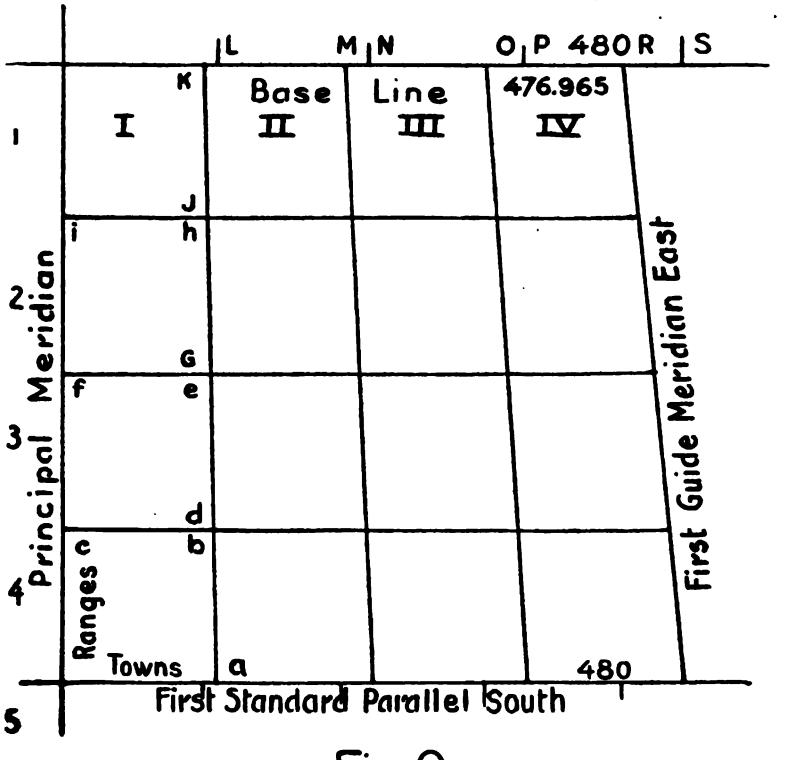


Fig. 9

of the base line. Fig. 9. The standard parallels south are run uniformly at this time twenty-four miles apart.

This chapter has been written for information to local surveyors and attorneys and is not intended for the guidance of government surveyors in the survey of the public lands.

CHAPTER VI

SUBDIVIDING TOWNSHIPS AND OBSERVATIONS

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§ 102. **Generally.**—In this chapter we quote freely from the Manual of Surveying Instructions for the Survey of the Public Lands, 1902, and, in some instances, refer to the 1919 Manual, recently published. We do this to the end that the professions may have the exact language of the original instructions and be the better able to apply them to the particular original survey, which may be under consideration. However, the professions will bear in mind that the directions for the subdivisions of townships laid down by the commissioner

have been greatly changed in recent years, as will be apparent by a perusal of this chapter.

As will be seen, the rule formerly for running the meridional lines of sections in the subdivision of a township was to run them on a true north and south line instead of parallel to the east boundary of the township. It is important to know under which instruction the particular survey was made.

In the latter part of this chapter we treat briefly of Dependent Resurveys and Independent Resurveys of certain townships in which rights of claimants to land have matured, and the rules laid down for the execution of such surveys, to the end that bona fide claimants may be fully protected. Local surveyors, in making subsequent surveys, must give heed to these rules and instructions in order to retrace original lines.

Where detached surveys have previously been made and later a survey of adjacent parts is ordered, the deputy surveyor is required to "dove-tail," so to speak, the recent survey, with the detached survey. In most cases this is prolific of fractional townships and fractional sections in the adjacent recent survey.[1]

§ 103. **Knowledge of original survey necessary.**—The local surveyor and bar should have exact knowledge, if possible, of the manner of subdividing townships into sections in a given survey. The instructions issued by the land department to the surveyor-general and his deputies, in early days, have not, in all cases, been preserved. In all such cases the surveyor will be referred to the field-notes of the particular survey and may gather the usual and general information therefrom necessary to his work. However, he will bear in mind that in such early surveys meager instructions, as to details, were given and frequently those instructions were disregarded and even violated by the deputy. Thus resurveys are made more difficult. In some instances it may be necessary for the local

[1]Manual (1919) § 155; post § 120.

surveyor to write to the commission for information as to such early instructions.

At the present time, and for many years, the instructions sent out have been minute and require great accuracy of the surveyor-general and his deputies in the execution of their duties. These instructions will be, here, briefly considered.

In the previous chapter we treated of the manner of subdividing a tract of land to be surveyed into townships.[2] This having been done according to instructions, and copies of the field-notes having been furnished the subdividing surveyor, he will proceed to the southeast corner of the township. At or near this point he will determine a true meridian by Polaris or solar observations, and will test his instrument thereon and, if necessary, fully adjust it.[3]

He will then retrace the first mile of the east and south boundaries of the township to be subdivided, if the subdivision thereof has been provided for by separate contracts. If by the same contract under which the township was surveyed, the retracement may be omitted. All discrepancies resulting from disagreements of bearings or measurements will be carefully set out in the field-notes.

§ 104. **Direction of range lines in subdividing townships.**— While, in theory, the statute requires the northerly section lines (the range lines) in subdividing a township, to run due north, it will be noted that the instructions now sent out by the commissioner to the surveyor-general and his deputies, provide that such section lines shall be run *parallel* to the east boundary of the township.[4] Hence, while such lines are parallel to a north and south line, they do not run north. This is evident. Formerly the instructions required these lines to run north and south. By the present method the deficiency or excess, east or west, is thrown onto the west tier of sections of the township, and the regular sections are made to contain

[2]Ante ch. V.

[3]Manual (1919) §§ 175-6; Manual (1902) §§ 135-6.

[4]Manual (1919) § 177.

six hundred and forty acres "as near as may be." Of course, the chances are that such sections will not be actually square but they will approach that form. All of the northerly section lines, except those between 1 and 2, 2 and 3, 3 and 4, 4 and 5 are run parallel with the east boundary of the township. No randoms are run in running out those lines. But between the sections along the north boundary of the township, random lines are run north. If such random line intersects the township boundary at the proper section corner, it is made permanent but if it falls either east or west of the proper corner, the surveyor corrects back and sets the temporary stakes over onto the proper line, as determined, by making it run to the proper section corner. In other words, under present instructions, the closing lines to the north, must close on the proper section corner, along the township line. Note specific instructions, as to lines between sections 1 and 2 in the following paragraph.[5]

But it must be noted that, when the north boundary of the township is a base line or standard parallel, (correction line), then, such northerly lines between sections 1 and 2, 2 and 3, 3 and 4, 4 and 5, must be run parallel to the east boundary of the township and the section corner planted on such base line or standard parallel at the point of intersection of such parallel line with such base line or standard parallel.[6]

§ 105. **Direction of township lines in subdividing township.**—It will be noted that in running township lines—that is the easterly and westerly lines of the sections—random lines are always run. These lines are run easterly in all cases, except the lines between the sections bordering on the west boundary of the township. In the latter case such random lines are projected westerly until they meet the west boundary of the township. If the random line strikes the proper section corner, such random becomes the true line. But if it

[5]Manual (1919) § 177.
[6]Manual (1919) § 177.

strikes the township boundary either north or south of the true corner, the surveyor must correct back and set over onto the true line thus determined. The quarter-corners on the north sides of sections shall be placed midway between the respective section corners, *except* those in the west tier of sections. These shall be placed at 40 chains (government measure) west of the section corner. Note the specific instructions below. It must be remembered that the instructions referred to herein are those of the commissioner now in force.[7] However, the earlier surveys were made under different and varying instructions, and the surveyor called upon to retrace any particular survey should become familiar with the instructions given to the original surveyor. Formerly, the line between sections 35 and 36 was run due north instead of parallel to the east line of section 36. So with the other northerly lines of sections in a township. This was the case with surveys made in 1835, and 1851, and at earlier and some later dates.

§ 106. **Meridional section lines.**—"The meridional section lines will be made parallel to the range line or east boundary of the township," say the instructions, "by applying to the bearing of the latter a small correction, depending on the latitude, taken from the table appended hereto, which gives, to the nearest whole minute, the convergency of two meridians six miles long and from one to five miles apart; and applies directly the deviation of meridional section lines west of north, when the range line is a true meridian. Add the correction to the bearing of the range line, if the same is west of north, but subtract when it bears east of north."[8] Thus it will be seen that the interior northerly section lines are not on the true meridian but parallel to the east boundary of the township. This throws the excess or deficiency wholly to the west side of the township. Bear in mind the difference between this and the old rule.

[7]Manual (1919) § 178.
[8]Manual (1902) § 136.

Corrections for Convergency Within a Township.

Correction to be Applied to Range Line at a distance of—

Latitude	1 mile	2 miles	3 miles	4 miles	5 miles
30 to 35	1′	1′	2′	2′	3′
35 to 40	1	1	2	3	3
40 to 45	1	2	2	3	4
45 to 50	1	2	3	4	5
50 to 55	1	2	3	5	6
55 to 60	1	3	4	5	7
60 to 65	2	3	5	7	8
65 to 70	2	4	6	8	10

Example. Latitude 47.° Range line bears N. 0° 2′ E.; then parallel meridional section lines will be run as follows:

From the corner for sections—

35 and 36	N. 0° 1′ E.
34 and 35	North
33 and 34	N. 0° 1′ W.
32 and 33	N. 0° 2′ W.
31 and 32	N. 0° 3′ W.

§ 107. **Line between thirty-five and thirty-six.**—Before beginning the subdivision of a township the deputy is required to test his instrument on a true meridian so determined by him. Then he runs the line between sections 35 and 36 parallel to the east line of section 36, beginning at the southwest corner thereof. And we find the instructions using this language: "After testing his instrument on the true meridian thus determined, the deputy will commence at the corner to sections 35 and 36, on the south boundary, and run a line parallel to the range line, establishing at 40 chains the quarter-section corner between sections 35 and 36, and at 80 chains the corner for sections 25, 26, 35 and 36." This is the rule now followed. As we have noted heretofore the former instructions required this line to be run due north.[9]

[9]Manual (1902) § 137; ante § 102.

§ 108. **Line between twenty-five and thirty-six.**—After the surveyor has permanently established the corner at 80 chains north of the township line, being the northwest corner of section thirty-six, he is required to random eastward between sections twenty-five and thirty-six, and parallel to the south boundary of section thirty-six, planting temporary corners at 40 and 80 chains respectively. Should the random line intersect the range line at the section corner then he will retrace the random, blazing the trees back on the line and establishing the permanent corner at a point midway between the two section corners. The exact wording of the instructions are: "From the last named corner, a random will be run eastward, without blazing, parallel to the south boundary of section 36, to its intersection with the east boundary of the township, placing at 40 chains from the point of beginning, a post for temporary quarter-section corner. If the random line intersects said township boundary exactly at the corner for sections 25 and 36, it will be blazed back and established as the true line, the permanent quarter-section corner being established thereon, midway between the initial and terminal section corner."[10] If the objective corner is in sight from the starting point, or the deputy has evidence of its location to prove that a different random course would fall closer to the desired corner, he may use such changed course for his random. In fact, a line may be run as a random for distance only when the course is certain.[11] Should the random intersect the township boundary either to the north or the south of the proper section corner, the surveyor will carefully note the falling, and from the data thus obtained, the true return course will be calculated, and the true line blazed, and the position of the quarter-section corner will be permanently established, as directed above. The surveyor, of course, will record in his minutes the details of the proceedings for future references.[12] It should be remembered that the meridional section lines take

[10]Manual (1902) § 138.
[11]Manual (1902) § 139.
[12]Manual (1902) § [illegible]; Manual (1919) § 178.

precedence of the latitudinal lines and should be given greater weight by the surveyor who is retracing the lines of a section.[13]

§ 109. **Other sections lying north of thirty-six.**—The surveyor having established the north boundary to section 36 will establish the boundaries between 24 and 25 and between 12 and 13 in the same way directed for the said north boundary of 36, except that the random line between 24 and 25 will be run parallel to the north boundary of 36, or in other words parallel to the south boundary of section 25. The random line between sections 12 and 13 will be run parallel to the south boundary of 13. Likewise, the random line between sections 1 and 12 will be run parallel to the south boundary of section 12.[14]

§ 110. **Line between sections one and two.**—A different rule prevails with regard to the line between sections 1 and 2. It is provided that from the corner common to sections 1, 2, 11, and 12 a random line shall be run northward parallel to the east boundary of the township. A temporary corner shall be set at 40 chains. The deputy then continues his random to the north boundary of the township. If such random intersects the township line at exactly the section corner between sections 1 and 2, it will be blazed back as the true line. The temporary quarter-corner will be established as the permanent corner. This will throw any fractional measurement onto the north half of the sections bordering on the north.[15]

But should the random, as projected, fall either to the east or west of the section corner between sections 1 and 2, the surveyor will note carefully the falling either east or west, and from the data obtained he will compute the bearing of the true line and then establish such true line. He will place the quarter-corner at the proper place, 40 chains northerly from the southwest corner of section 1, on the line so established.[16]

§ 111. **When north boundary of township is a base line.**—

[13]Manual (1919) § 180.
[14]Manual (1902) § 141.
[15]Manual (1902) § 142.
[16]Manual (1902) § 142; Manual (1919) § 181.

But when the north boundary of a township is a base or correction line still another rule prevails. The reason for the rule is evident. In such case the line between sections 1 and 2 will be run in this manner. Such line will be run parallel to the east boundary of the township as a true line. No random is necessary. At 40 chains the deputy will establish the quarter-section corner between sections 1 and 2. He will establish a closing corner at the intersection of the line so run with the north boundary of the township. He will carefully measure the distance from such closing corner to the nearest standard corner on the base or correction line and make a record thereof.[17]

§ 112. **Rule as to other sections.**—Each successive range of sections through the township, until the fifth range is reached, is run out in the same manner. As to the fifth range the section corner will be established at northwest corner of section 32 in the same manner as in the previous ranges. From this corner a random line will be run westerly to its intersection with the west boundary of the township, planting a temporary post at 40 chains on said line. The falling will be noted and the true line established in the same manner as for running the easterly lines of the other ranges, with this exception. The quarter-section corner will be placed exactly 40 chains westerly on the true line from the last section corner. This throws the fraction on the westerly halves of the several sections. The other lines for the west tier of sections are run in the same manner.[18]

§ 113. **General requirements re-iterated.**—"The random of a latitudinal section line will always be run parallel to the south boundary of the section to which it belongs," we are advised by the commissioner, "and with the true bearing of said boundary; and when a section has no linear south boundary, the random will be run parallel to the south boundary of the

[17]Manual (1902) § 143; Manual (1919) § 181.

[18]Manual (1902) § 144.

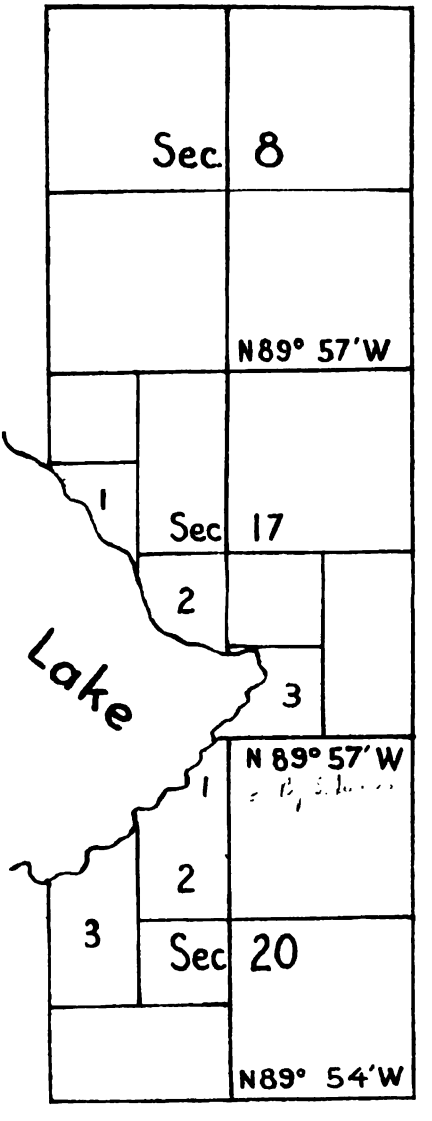


Fig. 10

range of sections in which it is situated, and fractional true lines will be run in a similar manner." Fig. 10.[19] The bearing of the south boundary of that township was the same as the south boundary of section 17 of the figure. It will be well for the surveyor to keep this general statement of the rule with reference to latitudinal section lines in his mind.

§ 114. **Miscellaneous suggestions.**—The rules provide that the deputy is not required to complete the survey of the first range of sections from south to north before commencing the survey of the second or any subsequent range of sections, "but the corner on which any random line closes shall have been previously established by running the line which determines its position," we are told, "except as follows: Where it is impracticable to establish such section corner in the regular manner, it will be established by running the latitudinal section line as a true line, with a true bearing, determined as above directed for random lines, setting the quarter-section corner at 40 chains and the section corner at 80 chains." Fig. 10.[20]

§ 115. **Quarter-section corners.**—All quarter-section corners, whether on meridional or latitudinal lines, except as herein stated, will be placed at points equidistant from the corresponding section corners. But on lines closing on the north or west boundaries of a township the quarter-section corner will always be established at precisely 40 chains to the north or west, as the case may be, of the respective sections from which those lines respectively start, by which the excess or deficiency of such sections will be thrown on the north or west sides thereof.[21]

§ 116. **Impassable objects on south boundary of township.**—In those cases where there are impassable objects on the south boundary of a township, so that only a part of such boundary may be established, it will be necessary to run an

[19]Manual (1902) § 145.

[20]Manual (1902) § 146; ante § 106.

[21]Manual (1902) § 147.

auxiliary base line or lines through that portion of the township which has no linear south boundary. The rules sent out make provision for such auxiliary base. Any fraction south of such line is required to be surveyed or subdivided by running south from such base. The rules provide that an auxiliary base line or lines "will be run through the portion which has no linear south boundary, first random, then corrected,

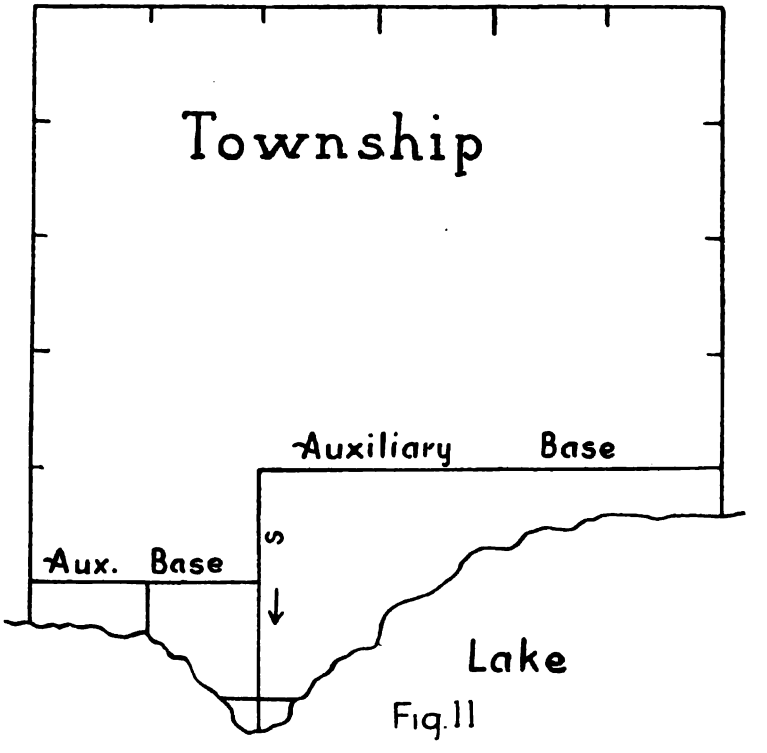


Fig. 11

connecting properly established corresponding section corners (either interior or exterior) and as far south as possible; and from such line or lines, the section line will be extended northerly in the usual manner, and any fraction south of said line will be surveyed in the opposite direction from the section

corners on the auxiliary base thus established." Figs. 11, 12, 13.[22]

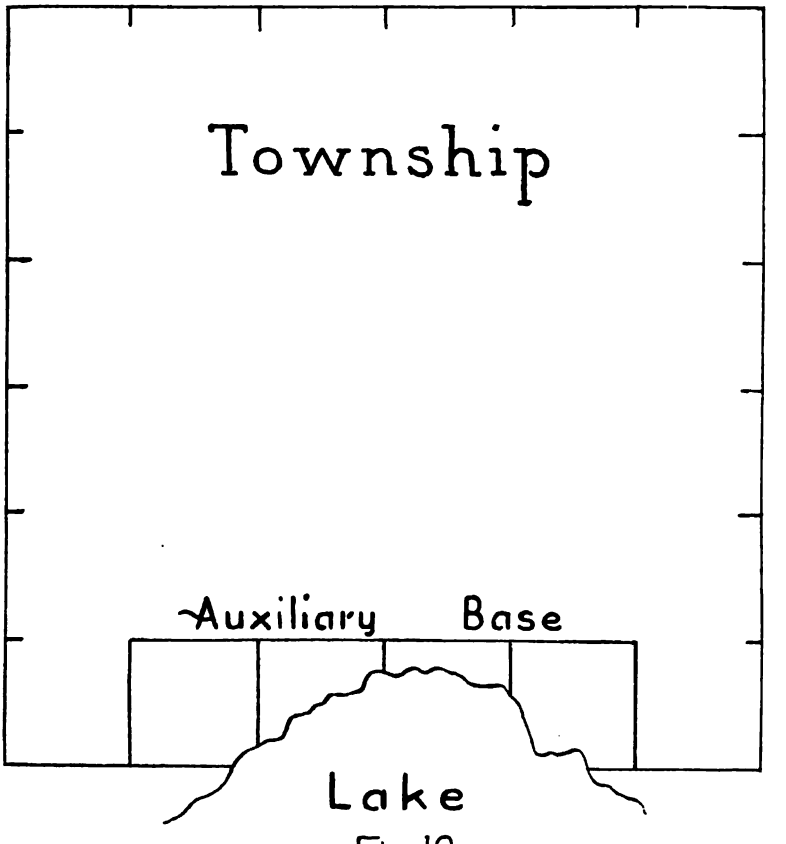


Fig. 12

§ 117. **Where no part of south boundary established.**— Where no part of the south boundary, by reason of impassable objects, can be established the deputy is required to subdivide the township from north to south. This will throw the excess or deficiency along the south and west sides of the township. These cases will usually be found where the township borders

[22]Manual (1902) § 148.

on a national park, a private claim, a reserve or similar tract of land. It may occur where there is a meanderable stream or body of water limiting the township.

So also if the east boundary of a township is without regular section corners and the north boundary has been run easterly as a true line, with section corners at regular intervals of

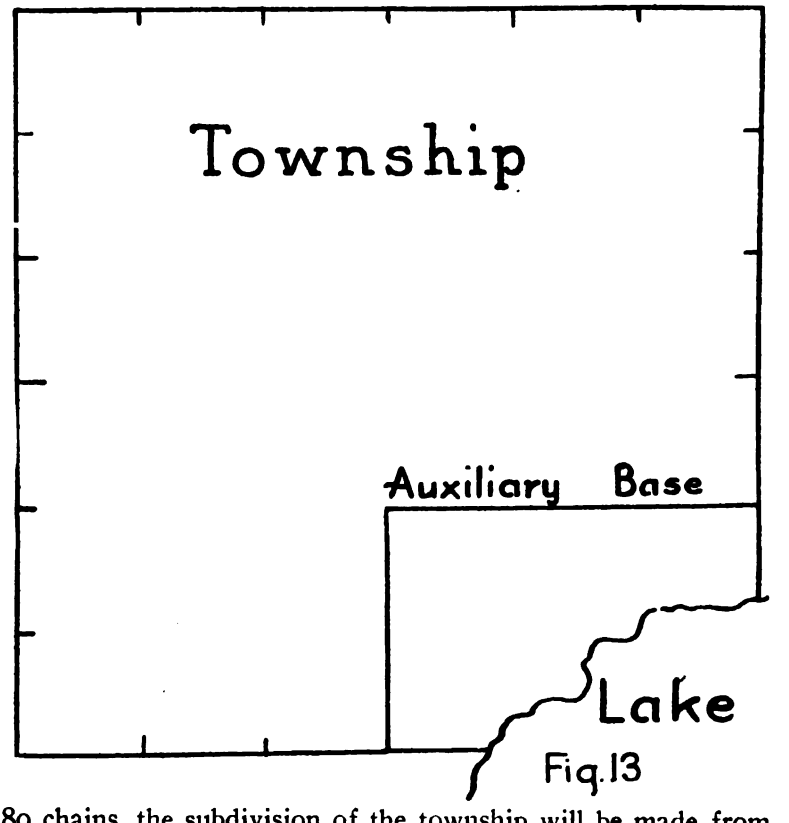


Fig. 13

80 chains, the subdivision of the township will be made from west to east, thus throwing the fractional measurements and areas against the irregular east boundary.[28] Figure 15 represents a case where both conditions exist. Fig. 16 also repre-

[28]Manual (1902) § 149; Manual (1919) §§ 213-214-215.

sents the same conditions under different circumstances. It will be seen that in Fig. 15 sectional guide meridians have been run. From these guide meridians the fractional sections on the easterly boundary of the township have been set off into lots and numbered.

§ 118. **Inaccessible point for corner.**—It frequently happens that the point where a section or township corner should be planted is inaccessible. In such cases it is the practice for the deputy to locate witness corners on each of the lines approaching such point. These should be located at distances not exceeding 20 chains therefrom. Said witness corners will be properly established, and the half mile on which they are established will be recognized as a surveyed line. Full data must be entered in the notes of the survey. Such witness corners should be marked as conspicuously as a section corner, and bearing trees will be marked wherever possible. The deputy will be required to furnish good evidence that the particular corner is inaccessible. This evidence should be noted in the record.[24]

In the event a considerable tract of desirable land is inaccessible, so to speak, and section lines are too short to justify the erection thereon of necessary witness corners, the deputy may run offset lines on lines of legal subdivision, far enough to show, by necessary witness corners the particular tract.[25]

§ 119. **Extension of regular lines impossible.**—In such cases meander corners are not permitted but the deputy is required to set witness corners and enter full data in his notes. "Where inaccessible precipices," say the instructions, "deep canyons or lands otherwise quite unsurveyable, prevent the extension of regular lines, deputies are not authorized to set meander corners, nor to meander the line separating lands that can be traversed from those that can not. In place of meandering, they are to set witness corners on line, near the inter-

[24]Manual (1902) § 150. [25]Manual (1902) § 152.

section of section lines with the brink or foot of the impassable cliffs, or at the margin of the impracticable marsh, to represent an inaccessible regular section or quarter-section corner if within 20 chains. Such quarter-section thus marked may be platted as surveyed."[26] See Fig. 39 and 40.

§ 120. **Dependent resurveys and private land claims.**— There are many private claims in our western country which were located, either prior to a general survey of the locality in which they are situated, or within a limited tract which was surveyed in that particular vicinity. In making such resurveys the government surveyor frequently finds locally recognized corners, discordantly related to the original survey. Such corners can only be employed for the determination of the boundaries of claims where bona fide rights have been acquired and duly established. Frequently these rights are surveyed by the government surveyor under the so called "metes and bounds" system.[27] Many of these claims have been worked and improved for many years; buildings and fences have been built thereon and the patentee has gained valuable rights thereby. Such claims are usually found in townships which have been partially surveyed only. It is desired to complete the survey of the township and to protect the claimant.

In such cases, if the original survey was legal and there was no fraud in the execution thereof, the government surveyors are required to run out the exterior lines of the claims, either as described in the patent, if a patent has been issued, or as actually claimed and occupied by the claimant. They are required to show the claim on the plat of the resurvey filed and to complete the survey of the township. Often these townships are very irregular and the surveyor finds it necessary to run out lots on the several sides of the township, and also adjacent to the claim. These lots are required to be numbered on the plat and full information and notes are returned to enable

[26]Manual (1902) § 151. [27]Manual (1919) § 426.

succeeding local surveyors to relocate all of the subdivisions thereof. No resurvey of such township should be attempted without a copy of the official plat and field-notes. For an example of such independent resurvey see Manual of Surveying.[28] See also Fig. 17.

§ 121. **Independent resurvey.**—An independent resurvey is one made by the government surveyors. It is an official resubdivision of the public lands distinct from the original survey which it is the design to supersede. It is proper where there have been gross frauds in the original survey or where gross errors have been made. There are three distinct steps in such resurvey: a. The establishment of the outer boundaries of the tract to be surveyed under the method of dependent surveys. b. The segregation of lands embraced in any valid claim where steps have been taken looking to the acquirement of title based on the former plat and survey. c. Such new exterior subdivision and meander lines as are necessary shall be run on a new plan, which shall supersede the old one and prevail.[29] The limiting boundary lines of lands subject to independent resurvey must agree with the previously established and identified exterior and subdivisional lines of the approved original survey.[30]

§ 122. **Metes and bounds survey of private claims.**—After the outboundaries of the lands subject to independent resurvey have been fixed the surveyor is required to run out "all duly entered, selected, reserved (in certain cases) granted or patented lands," which are described according to the former approved plat. These boundary lines shall be run by the metes and bounds system, that is by courses and distances, so that they may be platted in the section of the township to which they belong. Where these claims are bounded substantially by the regular subdivision lines they will be so platted and may

[28]Manual (1919) § 427.
[29]Manual (1919) § 428.
[30]Manual (1919) § 429.

be so described. The government surveyor is required to consult the private land claimant as to his boundaries and the latter should point out his boundaries, as he claims them to be. The identity of each claim to be segregated must be maintained by the surveyor. If improvements have been made in good faith the surveyor is required to so execute the survey as to cover as nearly as possible such improvements, and at the same time maintain substantially the lands described in the original entry. And it is said, "Each non-conformable valid claim in a township will be given a serial tract number, commencing with number 37 in the smallest numbered and entered section of the original plat, progressing through the township in the order in which lots and sections are numbered. "And we find the commissioner saying, "A tract number will be used but once in a township, and if any tract lies partly in two or more townships subject to resurvey the number applied to the tract in the first township resurveyed will not be used for other tracts in the adjoining townships."[31]

It will be readily seen that the claim surveyed by metes and bounds in a township to be first numbered will be the one in the "smallest numbered" section. That is if the smallest or lowest numbered section in which any such claim in a township is found is in section 10, then that claim will be termed, "Number 37," and will so appear on the plat. Other claims will be numbered in regular order following, as 38, 39, etc. These numbers will follow in the next lowest numbered section in the township. If the claim extends to another township a new number must be given that part in the other township.

§ 123. **Rules—Metes and bounds—Resurveys.**—The government has prescribed certain rules to be followed in metes and bounds surveys of specially designated tracts. We here give an abstract of such rules as follows:

[31]Manual (1919) § 444.

(a). Each claim at variance with the lines of the resurvey but acceptably located, "will be surveyed and monumented at each angle point."

(b). In the event a portion of a claim is in a township not subject to resurvey, such portion will not be run out by metes and bounds, "providing the limiting boundary is found to qualify as set forth in Section 429" of the Manual, (1919). That portion of claim in the township to be resurveyed should be defined in a position, "which is properly related to the identified or restored corners on the limiting boundary."

(c). Where the boundaries of the claim are not acceptably located as pointed out by the claimant, the surveyor is required to proceed with a proper survey of the tract. He is required to monument the corners. If claimant protests against such location, he will make his protest in writing and it shall be made a part of the return to the land department together with all notes, data and information.

(d). Where the metes and bounds segregation does not include all of the lands occupied by or claimed by the entryman, patentee or owner, and the entryman indicates a desire to amend his entry, a full report shall be made by the surveyor and full notes shall be returned to the department, "all looking to the protection of the title to the land actually earned."

(e). In the event the quarter-quarter section embraced within a claim fall approximately in the same position as the quarter-quarter section of the resurvey, and the entryman indicates a desire to conform his claim to the resurvey, and there seems no apparent objection, the surveyor will state the facts in the field-notes, and the claim will be so indicated on the resurvey plat. In such cases the metes and bounds survey will be omitted. But where any tract whose original description includes a fractional lot, or where any part of a tract is within any fractional lot of the resurvey, the tracts must be segregated as a whole by metes and bounds, even though some or all of

the boundaries of the lot coincide with the subdivisional lines of the resurvey.

(f). Conflicting tracts will be surveyed and monumented and conflict shown on the resurvey plat. All conflicting boundaries must be shown on the plat and data given in the field-notes.

(g). Angle points will be numbered serially, beginning with Number 1 in the northeast corner, "proceeding around the claim, running westerly from the initial corner."

(h). No accessories will be planted at the angle points but monuments will be planted at such points.[32] All claims shall be shown on the plat of the resurvey, and full notes of such survey must be returned with such plat. These notes and the plat are absolutely necessary in all retracements of the lines so run in such resurvey.

§ 124. **Example of dependent resurvey.**—Figure 14 is a copy of a diagram furnished by the commissioner of the land office.[33] This diagram bears on instructions from the land office to the surveyor-general and his deputies with reference to dependent resurveys, briefly treated in this chapter. We give this diagram in order that local surveyors may understand the method pursued in such resurveys. The main purpose is to restore original corners and lines, and the protection of the bona fide rights of claimants in their locations.

Of course, the restoration of corners and lines must be brought about with reference to the evidence of the original survey, and the discovery and identification of original corners. We here give the key to Fig. 14, as given by the land department.

Key to Figure 14.

"A—Identified original corner;

B—Intersection of center lines of public cross roads, intended to be located at section corner and generally so recognized; accepted as best available evidence of corner;

[32]Manual (1919) § 445. [33]Manual (1919) § 427.

C and D—Identified original corners;

E—Corner established by local surveyor; record shows proper application of the method of double proportionate measurement; generally recognized as correct position of corner; accepted on an equality with an identified original corner;

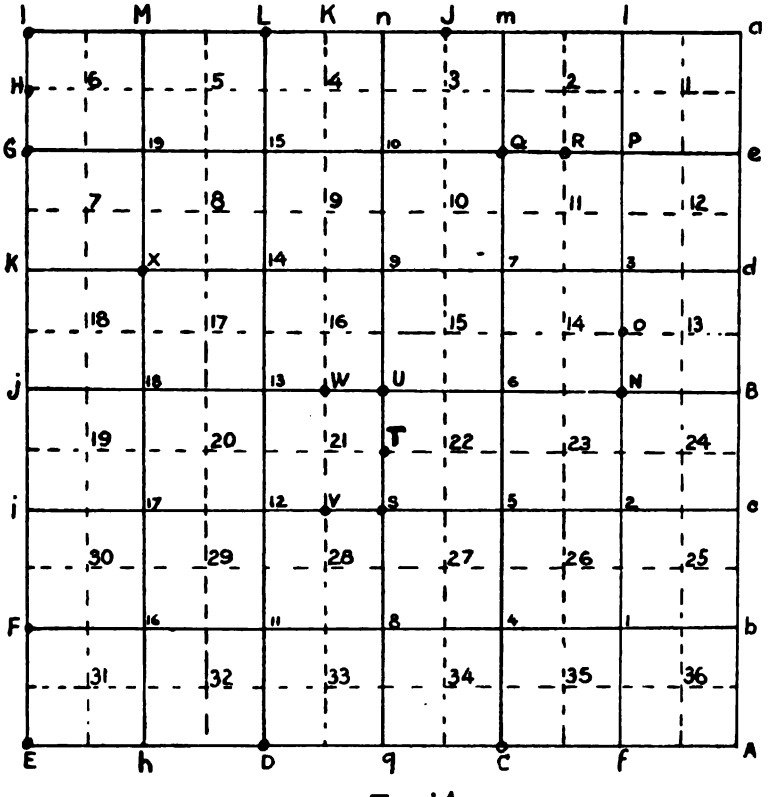


Fig 14

F-M—Inclusive, identified original corners;

N—Same as B;

O—Identified original corner;

P—Intersection of mean position of meridional and latitu-

dinal blazed lines through virgin timber; age count on overgrowth qualifies for date of original survey;

Q—Restored corner based upon control furnished by latitudinal position of blazed line as above and fixed in departure by distance to original line tree.

R—Identified original corner;

S—Same as E;

T—Position by location of improvements; point agrees approximately with the theoretical position and it is recognized by adjoining claimants; improvements would be adversely affected by change of point;

U—Same as E;

V and W—Same as T;

X—Identified original corner;

a—Duly restored by double proportionate measurement and thereafter employed for general control on an equality with an identified original corner;

b-n—Inclusive—Theoretical true line position, duly restored by single proportionate measurement.

O—Employed for general control. (Corners).

I—Theoretical position. (Corners).

Method

After completing all retracements and having determined upon the general control to be adopted, as indicated in the diagram, (Fig. 14), and accompanying key, the true lines of the dependent resurvey, beginning at the southeast corner of the township, will be re-established as follows:

Single proportionate measurement.

Lines: A-B, B-a, A-C, C-D, D-E, E-F, F-G, G-H, H-I, a-J, J-K, K-L, L-M, and M-I.

Double proportionate measurement.

Section corners: 1, f-N and b-F; 2, F-N and c-S; 3, O-P and d-X; 4, C-Q and b-F; 5, C-Q and c-S; 6, C-Q and N-U;

7, C-Q and d-X; 8, g-S and b-F; 9, U-n and d-X; 10, U-n and Q-G; 11, D-L and b-F; 12 D-L and V-i; 13, D-L and W-j; 14, D-L and d-X; 15, D-L and Q-G; 16, h-X and b-F; 17, h-X and V-i; 18, h-X and W-j; 19, X-M and Q-G.

Interior quarter-section corners.

All missing interior quarter-section corners by single proportionate measurement on line between the adjoining section corners as above determined."[34]

The above key will enable the reader to understand the method pursued by the government surveyors in making dependent resurveys. Full notes must be taken and, with plat, returned to the land office. This resurvey, when approved by the commissioner, will become the original survey. Hence the local surveyor must have full notes of both the original and the resurvey by the government to enable him to properly retrace the lines. The same rule will be followed by local surveyors in relocating lost corners.

§ 125. **Fractional township—Subdivision from north to south and from east to west.**—As we have seen there are many fragmentary and odd shaped fractional townships where it is impossible to follow the general rule in the subdivision thereof into sections. We have seen that under certain circumstances auxiliary bases are established from which the subdivision will proceed.[35] There is another class of fractional townships in which the subdivisional lines are required to be run from north to south and from east to west. Fig. 15. In order that the latitudinal lines may be run from east to west the surveyor is required to establish "sectional guide meridians" from which the westerly lines will be initiated. This sectional guide meridian is required to be run from the eastermost regular section corner on the north side of the township and projected south. A-B Fig. 15. This will give fractional measure-

[34]Manual (1919) § 427.

[35]Ante § 116.

ments and lots on the west, south and east sides of the township. In the diagram the township is bounded on the south and east sides by a reservation. The same rule will apply in the event the township was bounded on those sides by a park or body of water, or an impassable swamp. In cases where

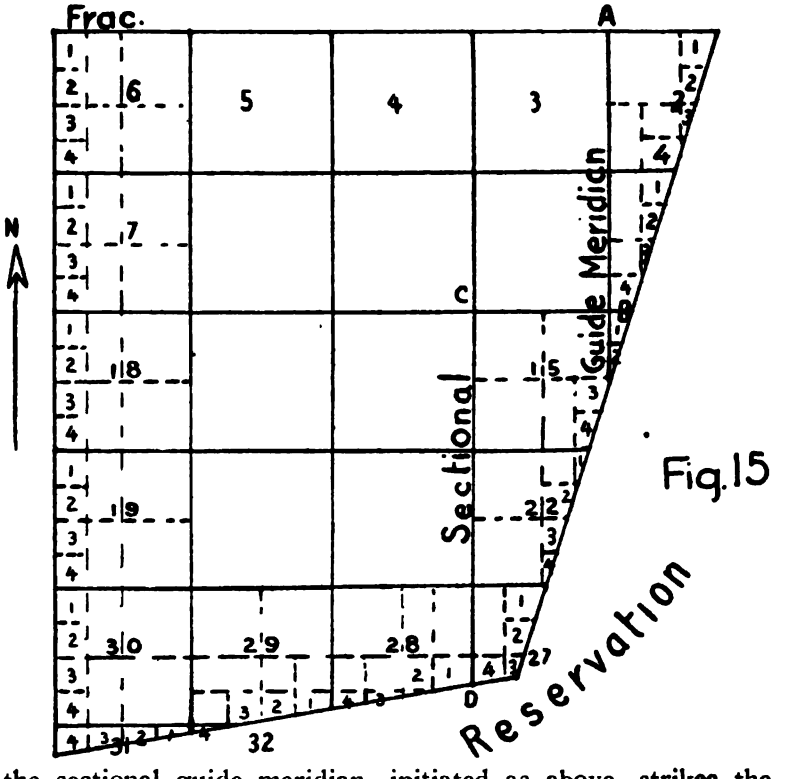


Fig. 15

the sectional guide meridian, initiated as above, strikes the diagonal or east side of the township it will be necessary to continue the same on the section line next to the west as shown in the diagram. C-D Fig. 15.[36] The method described in this section is used in those cases where section six of the township is fractional.

§ 126. **Fractional townships—Subdivision from north to**

[36]Manual (1919) § 213.

south and from west to east.—In the subdivision of fragmentary townships, where section 6 is not fractional, and where the south and east sides are irregular, the subdivision lines will be run from north to south and from west to east, thus throwing the excess or deficiency on the south and east sides of the fractional township, making the sections on those sides fractional. Fig. 16.[37]

The local surveyor, in making surveys of such townships, or parts thereof, and in retracing and re-establishing the orig-

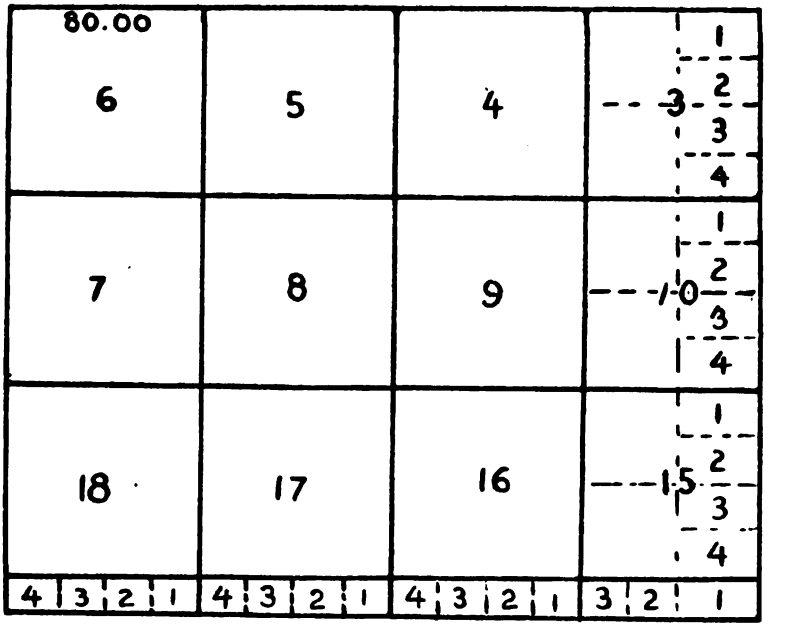


Fig. 16

inal lines and corners should possess full notes and a plat of the original survey.

[37]Manual (1919) § 213.

§ 127. **Fragmentary townships.**—In days gone by, the government frequently made fragmentary surveys of detached portions of the public domain. One or more sections or parts of sections would be so run out. Sometimes in the same township and sometimes in a different township. Generally in such cases the exteriors of the particular township would be established with reference to the base line and principal meridian for that locality. While they were often defective still they are conclusively taken as right. These townships were partially subdivided into sections and the balance of the township remained unsurveyed to be taken up at some future day. The surveyors to whom are assigned the subdivision of the remainder of such fragmentary township are required to respect the lines formerly established in the former partial subdivision, and are required to "dove-tail", so to speak, the two surveys. Necessarily, where the first work was defective, there would be many double corners and fractional interior sections. These fractional sections are divided into lots in those cases where the regular subdivision could not be made.

Figure 17 is an illustration of a partial township so subdivided. The sections shown are 4, 5, 8, 9, 16, 17, 20, and 21. The northeast quarter of section 4, the northwest quarter o section 5, the southeast quarter of section 9, and all of sect 16, and portions of section 19, were the parts run out i first survey. Corners A, B, C, D, E, and F, are suppose correctly located with reference to the township corne irregular and out of place sections are those of the fir whose boundaries must be respected. Thus, num are required in the new sections surrounding the fi

The local surveyor will encounter such fragments What we say here is only a hint of what he may must use his best judgment in retracing the origi government notes should be full. These the s have and in addition he should possess a copy

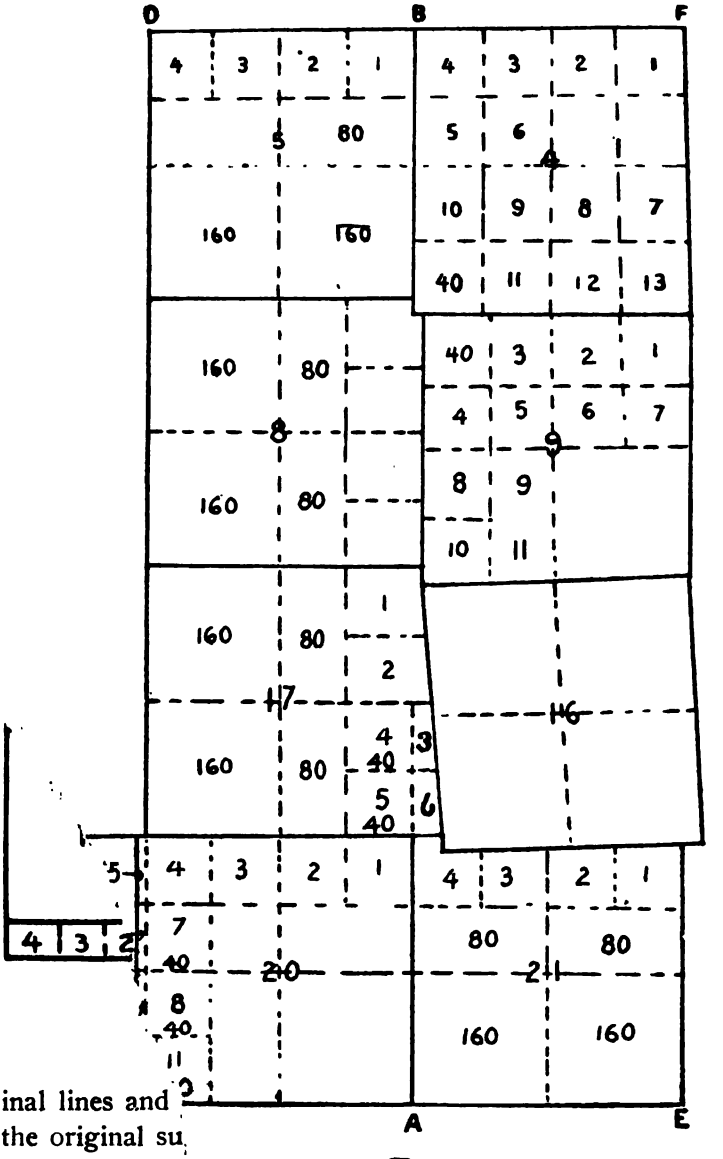


Fig. 17

inal lines and
the original su

[37]Manual (19

the second survey of the township or so much thereof as is necessary to show all of the original survey in connection with the section he is subdividing.[38]

It is the hope of the author that the suggestions and hints herein given will enable the professions to fully understand the subdivisions of the various kinds of townships which will be found in actual practice. As herein suggested such understanding is necessary in making local surveys.

[38]Manual (1919) § 224.

CHAPTER VII

SUBDIVISION OF SECTIONS

Sec.
128. Generally.
129. Information from land office.
130. Boundaries of section.
131. Subdividing a section into quarters.
132. Closing lines of north and west sides of township.
133. Double sets of corners on township and range lines.
134. Subdividing fractional sections.
135. Subdivision of quarter-section into quarters.
136. To establish quarter-quarter corner, north or west of center of section on north or west sides of township.
137. To subdivide quarter-section lying along north and west boundaries of township.
138. Re-establishment of meander corners.
139. Proportionate measurement more reliable than adjustment of chain.
140. Resurvey must be initiated and finished at certain and known points.
141. Irregular and fractional sections.

§ 128. **Generally.**—By far the greater part of work in rural districts of local surveyors consists in the subdivision of sections originally surveyed under the direction of the surveyor-general. Much of what we could well embrace under this title will be separately treated under the head of "Excess and deficiency."[1] Also closely related to the subdivision of sections is the chapter on "Restoration of Lost or Obliterated Corners."[2] The reader is referred to those chapters for a more detailed treatment of the subject.

Under Chapter XV we quote largely from the rules and regulations of the general land office for the "Restoration of

[1]Post ch. X.
[2]Post ch. XV.

Lost or Obliterated Corners and the Subdivision of Sections." The reader is requested to carefully study that chapter and become familiar with such rules and regulations. There should be no guess work in the subdivision of a section. It should always be run out according to law. The practice for the surveyor to disregard the law and the rules "because the interested parties so agreed," is by all means to be discouraged. Under no circumstances should the surveyor encourage such practice as it always leaves the section improperly subdivided, and is liable to produce confusion among surveyors and land owners, in years to come, and may be fruitful of litigation.

§ 129. **Information from land office.**—Should the surveyor, in practice, have a problem not covered in this work and desire information as to the proper procedure he should communicate with the commissioner of the general land office for advice thereon. In such inquiry he should give an accurate description of the section, town and range, with a clear statement of the particular point upon which information is desired. Furthermore he should send a diagram showing conditions, giving the distances in chains and links—not feet. Give that office all the information within the surveyor's knowledge and it will receive attention.

§ 130. **Boundaries of section.**—Before attempting to subdivide a section, the surveyor should know the actual boundaries of the section. He can not legally subdivide a section without such information. He must know the location of the section and quarter-section corners. If any of such corners are lost or obliterated he must first proceed to re-establish such corners in the manner provided by law.[3]

The procedure should be: First, Locate all section and quarter-section corners not lost or obliterated; Second, Re-establish such section and quarter-section corners as are lost or obliterated; Third, Run the quarter-lines each way, thus fixing

[3]Post ch. XV.

the center of the section; Fourth, Establish the 1/8 and 1/16 section corners in the manner provided herein; Fifth, Subdivide a quarter-section by connecting the 1/8 and 1/16 section corners by straight lines. The point of intersection of these lines will be the center of the quarter-section. Still smaller subdivisions may be made in a similar manner, first establishing the proper corners.

§ 131. **Subdividing a section into quarters.**—The statutes of the United States provide that a section shall be subdivided into quarter-sections by "running straight lines" from the established quarter-corner to the opposite corresponding established quarter-corner. The intersection of these lines shall be the center of the section.[4] It will be noted that the rule applies only to regular sections and not to sections in fractional townships, "where no such opposite corresponding corners have been or can be fixed." In the latter case the so-called quarter-lines or "boundary lines shall be ascertained by running from the established corners due north and south or east and west lines, as the case may be to the water course, Indian boundary lines, or other external boundary of such fractional township."[5]

While the statutes provide that these lines shall be run "due" north and south or east and west, as the case may be, that result is usually obtained by running a mean between the east and west boundaries of the section for the north and south quarter line and by running a mean between the north and south boundaries of the section for the east and west quarter-line so-called.[6] But if the section is lacking in one of the sides then such so-called quarter line will be run parallel to the existing and known side.[7]

§ 132. **Closing lines of north and west sides of township.—**

[4]Barnes' Fed. Code, § 4138; ante §§ 59, 61 and 62.

[5]Barnes' Fed. Code, § 4138; post ch. XIX.

[6]Post ch. XIX.

[7]Post ch. XIX.

The quarter-section corners of lines closing in the north and west sides of a township were planted by the government surveyors at 40 chains to the north or west of the last section corner. The excess or deficiency is thus thrown on the half mile next to the township or range line. Should such quarter-section corner be lost it will be re-established at 40 chains, original measure, north or west, as the case may be, of the last interior section corner. This is found by a proportionate measurement of the whole section line. If the recent and government measures agree then there would be no necessity of an apportionment as the corner would then be placed 40 chains from the last interior section corner.[8]

§ 133. **Double sets of corners on township and range lines.**—In those townships where there are double sets of section corners on the town and range lines the quarter-corners for the sections south of the township line and east of the range line were not established in the field by the government surveyors. In subdividing these sections the quarter-corners will be placed at a proportional distance north or west of the last interior section corner as provided in the preceding paragraphs, remembering that the distance north or west of such interior section corner should be 40 chains, original measure, not recent measure.[9] Under present rules double corners seldom occur except on base and correction lines, but double corners are usually found on those lines. On the base line only where that line runs through the tract to be surveyed and not along the south side thereof. But even so, double corners may be found thereon after a survey of the tract lying south.

§ 134. **Subdividing fractional sections.**—The subdivision of fractional sections in a fractional township, where the divisional line has but one end fixed and certain, is accomplished

[8]Post ch. XIX.
[9]Post ch. XIX.

under a special provision of the statutes. This rule provides that the division line shall run due north, south, east or west, as the case may be, to the reservation, Indian or other boundary.[10] This rule should be followed literally if the lines of a section were true lines, but in practice, this is seldom the case. Hence, the practice, as we have seen, is to run "mean lines." That is, the line required to be run should be a mean between the east and west or north and south boundaries of the section, where such sides are known, and there are two sides. But it often happens that one of the boundaries is lacking—it may be in a lake or cut off by a reservation. In that event the division line should be run parallel to the known boundary. This will always be done where there is no opposite section line.[11] Figs. 104-104a.

§ 135. **Subdivision of quarter-section into quarters.**—The surveyor having first established the center of the section in the manner provided by law, will proceed to establish the two 1/8 and 1/16 corners of the quarter-section to be subdivided. As heretofore noted, these exterior corners will be established midway in a direct line, between the quarter-section and section corner. The interior corners (1/8 or 1/16) of an interior section will be established midway in a direct line between the center of the section and the quarter-corner. These corners are usually termed quarter-quarter section corners. Should the quarter-section to be subdivided be in the last half mile of a section bordering on the north or west sides of a township, a different rule must be followed. In that event such quarter-quarter corner will be placed 20 chains proportionate measurement to the north or west of the quarter-section corner. Figs. 106-107.[12]

[10]Barnes' Fed. Code, § 4138.
[11]Post ch. XIX.
[12]Post ch. XIX.

§ 136. **To establish quarter-quarter corner, north or west of center of section on north or west sides of township.**—It will be seen that this presents a different and peculiar problem, for the reason that that part of the quarter lying north or west of the center of such section was never measured by the government surveyors and is not given in the field-notes. The surveyor must, therefore, compute such distance by making it a mean between the two corresponding sides of the section of which such distance is sought. Having found such mean (government measure), he will establish such quarter-quarter corner by proportionate measurement as in other cases. It is believed that subdivision 80 of the Circular of the general land office on "Restoration of Lost or Obliterated Corners and Subdivision of Sections," makes this imperative.[13] Figs. 106-107.

§ 137. **To subdivide quarter section lying along north and west boundaries of township.**—The quarter-quarter corners having been established in the manner provided in the preceding section, the surveyor will proceed in the manner provided for the subdivision of a quarter of an interior section, i. e., he will run straight lines between opposite corresponding quarter-quarter section corners. The intersection of the lines thus run will be the corner common to the four quarter-quarter sections. In locating quarter-quarter corners along township and range lines where double or tripple corners were established the surveyor will make certain of the corners of the particular section. Figs. 106-107.[14]

§ 138. **Re-establishment of meander corners.**—In the subdivision of sections made fractional by a body of water which was meandered, and along which meandered courses were established, the surveyor will frequently find it necessary to

[13]Post ch. XIX.
[14]Post ch. XIX.

re-establish lost or obliterated meander corners. This is not always an easy matter, and, at best, uncertain, in the absence of evidence of those who had known the location of the corner before it was lost To re-establish such lost corner the surveyor should first carefully chain "at least three of the section lines between known corners of the township within which the lost corner is to be relocated," say the instructions, "in order to establish the proportionate measurement to be used."[15] In retracing such original lines the surveyor should ascertain the real course used by the original surveyor. If such surveyor reported meridional lines as running due north and it is found that the average course of the three known lines is north 1 degree, and 10 minutes east, this course should be considered in restoring an extinct north line to a meander corner.[16] These preliminary requirements must not be omitted, since they give the only data by which the fractional section line can be measured. "The missing meander corner will be re-established," continue the rules, "on the section or township line retraced in its original location, by proportionate measurement found by the preceding operations, from the nearest known corner on such township or section line, in accordance with the requirements of the original field-notes of survey."[17]

§ 139. **Proportionate measurement more reliable than adjustment of chain.**—The old practice required the surveyor to adjust his chain to suit the former measure, but recent instructions require the surveyor to pursue the "proportionate measurement" practice. This will be found more desirable and more accurate. It is seldom that the recent and former measurements will agree. Such differences occur in a variety of ways, such as using a chain too long or too short; the failure

[15]Restoration of Lost or Obliterated Corners, § 67; post ch. XIX.

[16]Restoration of Lost or Obliterated Corners, § 67, Post ch. XV.

[17]Restoration etc. Corners § 68; post ch. XV.

to level up in measuring an incline; by carelessness in setting pins; by failure to measure in a direct line or by an error in entering or transcribing the notes. The surveyor should avoid all of these errors in retracement as in the original survey. "By proportionate measurement of a part of a line is meant," the instructions say, "a measurement having the same ratio to that recorded in the original field-notes for that portion, as the length of the whole line by actual resurvey bears to its length as given in the record."[18] For manner of making this computation see subsequent chapter.[19]

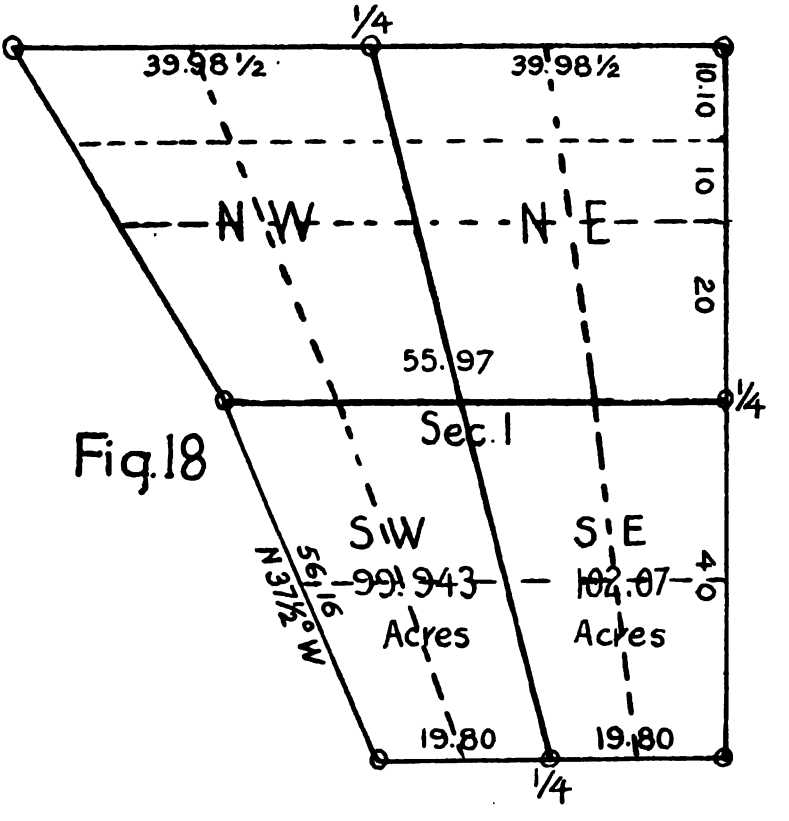
§ 140. **Resurvey must be initiated and finished at certain and known points.**—It will be seen that a resurvey must be initiated at some certain and known point, and it must likewise be finished at some certain and known point. Such points being fixed and known, the original measurement known, the principal distances between different points on the same line being known, the surveyor can, by a proportionate measurement, re-establish such points with reasonable accuracy. If such intermediate points are known their locations can not be changed. If lost and there is no evidence as to their former location then the regulations require their relocation by proportionate measurements. A corner should not be given up as lost until all traces and evidences of its former location have been obliterated. If the surveyor will follow these instructions, in the subdivision of sections, his work will be in the best possible shape to withstand assaults on its correctness.

§ 141. **Irregular and fractional sections.**—In the subdivision of fractional sections very irregular quarters frequently result. But the rule that to subdivide a section into quarters the surveyor should run straight lines from the quarter-corner

[18]Restoration, etc., § 83; Post ch. XV.

[19]Post ch. XV.

on the south to the quarter corner on the north, and from the quarter-corner on the east to the quarter-corner on the west must be followed. Fig. 18. Referring to this figure, it will



be noted that all of the section and quarter-section corners, except the south-quarter corner, were known. Required to subdivide the section into quarters. The surveyor should first establish the south-quarter corner on a direct line midway between the southeast corner and southwest corner of the section. He should then run the quarter lines according to the rule as set forth above. The several tracts of land will be

described as quarter-sections unless the government plat designates those tracts as lots. These several quarters will be irregular and all will be less than one hundred and sixty acres, where the sides fall short of the required distances. Or if the sides be greater than the required distances the quarters may be more than one hundred and sixty acres.[20]

[20]Jones v. Wellcome, 141 Minn. 352, 170 N. W. 224.

CHAPTER VIII

FRACTIONAL LOTS, NUMBERING AND AREAS

Sec.
141a. Generally.
142. Fractional lots, what are?
143. Formed by draftsmen in office.
144. Rules for subdividing fractional sections.
145. Boundaries of fractional lots.
146. Townsites.
147. Islands.
148. Lots in section in north boundary of township.
149. Lots in sections in west boundary of township.
150. Lots in section six.
151. Fractional sections bordering on reservations.
152. Mining or other claims.
153. Uniform system of numbering lots.
154. In irregular surveys.
155. Areas in certain cases omitted.
156. Areas of lots.
157. Areas of lots in section six.
158. Areas of tracts forty chains long north or west boundary.
159. In conclusion.

§ 141*a*. **Generally.**—Surveyors and members of the bar are not always familiar with the method pursued by the government in parting off and numbering the lots in fractional sections. That a set of uniform rules has been laid down for the guidance of the government officials whose duty it is to part off and number such lots does not seem to have been much considered by local surveyors. To the end that local surveyors and the bar may have a thorough knowledge of the instructions sent out by the land department on this important subject, we are devoting this chapter.

It has been thought best to quote freely from such instructions as are found in the "Manual of Surveying Instructions

for the Survey of the Public Lands, (1902)." A careful study of the chapter will be found instructive and useful. Local surveyors should be fully informed as to this branch of their work. We would draw the reader's attention to the several illustrations to which reference is made. These illustrations make plain the manner of parting off and numbering the lots of fractional sections under all kinds of conditions.

All sections bordering on the north or west sides of a township are fractional; likewise sections bordering on a meandered lake or through which a meandered stream flows are fractional. It sometimes happens that sections bordering on the south or east sides of a township are fractional. This is the case where, owing to local conditions, the excess or deficiency is thrown on the south or east sides of the township.[1] So also, townships bordering on or containing reservations, national parks, reserves or townsites are fractional and contain fractional sections.[2] Such fractional sections are platted into lots, which are numbered as directed in this chapter, and sold by such numbers. The platting and numbering of the lots, and also the computations of the areas are done in the office.

§ 142. **Fractional lots, what are?**—Fractional lots are those irregular tracts of land designated on the plats of surveys by the land department of the government. They are to be found only in fractional sections or fractional tracts. They are formed, either, (a), by the excess or deficiency thrown on the exterior sections of a township; (b), By meandered lakes, ponds or rivers which may cover a part of a section; (c), By a recent survey approaching a former government survey where the sections adjacent to such former survey are either in excess or fall short of full sections; (d), By the surveyed sections bounded by a reservation, national park, mining, or

[1]Ante §§ 116-118.
[2]Ante §§ 116-118.

other private claim; (e), By irregular tracts or strips of land bounded on a lake or river and surveyed under special instructions of the land department.

§ 143. **Formed by draftsmen in office.**—The subdivision of the various fractional sections designated in the preceding section, except (e), is performed by the draftsmen in the office to which reports and notes are sent, and not by the surveyor who did the field work. In so subdividing, forming and numbering the lots, the officials are required to use their best skill and judgment to "arrange the lots in the most convenient and equitable form for both the purchaser and the government."[3] The idea is to divide the shore line along a navigable stream or lake so as to give as many lots with a substantial water frontage as the situation will admit.

§ 144. **Rules for subdividing fractional sections.**—As an aid to the officials who do the subdividing work the government has laid down the following rules:

(a), Avoid needlessly small subdivisions;

(b), Avoid giving to lots a long shore line with small width;

(c), Apportion the privilege of water front among as many lots as regular division limits will permit;

(d), Let the longer direction extend back from the shore rather than along the water;

(e), Instead of making as many full forty acre tracts as possible, leaving small fractions of a few acres along the shore or other boundary, attach such marginal strips to the forties, making tracts of forty-five, fifty, to fifty-five acres;

(f), But if a fractional lot would equal or exceed sixty acres it should be divided;

(g), No lot should be partly in two sections.[4]

§ 145. **Boundaries of fractional lots.**—As to the designa-

[3]Manual (1902) 230.

[4]Manual (1902) 231-2.

tion of the different tracts it is the rule that: (a), lots should be laid down, if possible, so as to give each lot a specified "word description," according to its relative position in the fractional section. Or (b) by a number, in all cases where the lot can not properly be designated as a quarter-quarter. (c), Fractional lots, not susceptible of being described according to relative local position should be numbered in a regular

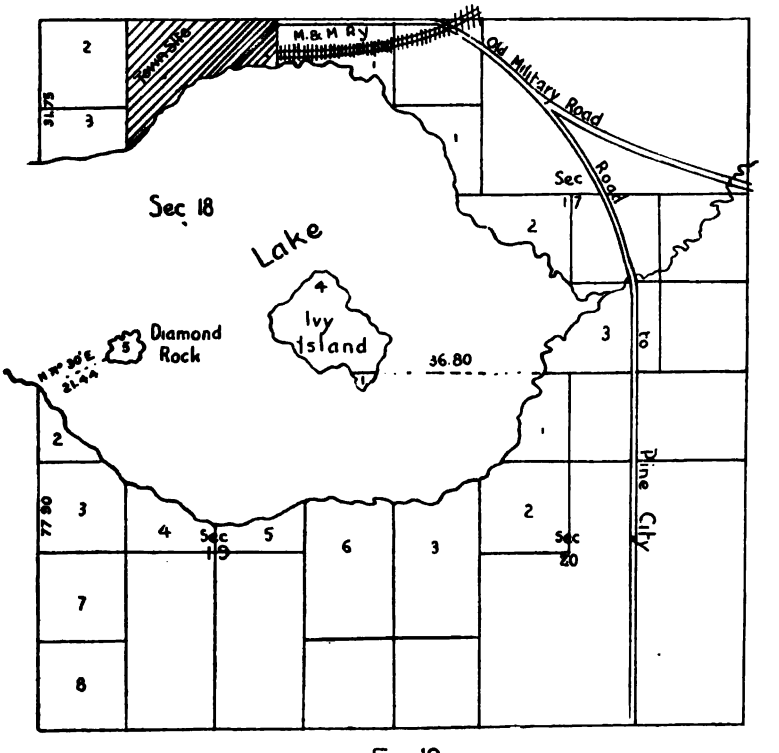


Fig 19

series. Fig. 19. Note therein the numbering of the lots under different conditions. The reader will specially note that there are two lots on Ivy Island. Lot 4 thereon is a part of section 18, and Lot 1 thereon is a part of section 19. Lot 5 of sec-

tion 18, covers the entire Diamond Rock Island. It will be noted the south boundary of section 18 runs through Ivy Island. Hence there must be more than one lot on that island under the rules above.[5]

§ 146. **Townsites.**—In the event the government surveyors come across a townsite or city located on a body of water, the lots should comprise no part of the townsite or city but should be bounded by the exteriors of the city or townsite. The areas of such lots, excluding the city or townsite, properly numbered, should be given. Fig. 19. Observe the townsite on said figure. It is in section 18. There are three lots, viz., 1, 2 and 3. No part of these lots is in the townsite.

§ 147. **Islands.**—Where islands are found in a lake and surveyed, they should be tied to the most convenient meander corner. The lot, or lots, of such islands should be numbered consecutively with the other lots of the section in which such island may be situated. Fig. 19. If in more than one section the part in each section should be so numbered as to that section. By referring to that figure it will be noted that Diamond Rock Island is tied to the meander corner at N. W. corner of Lot 2 in section 19. Also that Ivy Island is tied to the meander corner at the southwest corner of Lot 3 in section 17. Note also the two lots on Ivy Island.

§ 148. **Lots in section in north boundary of township.**—The lots in a section of the north tier of a township should be numbered consecutively from east to west in each section. Fig. 20. Observe that lot 1 is situated in the northeast corner of the section and the numbers are consecutive to number 4 in the northwest corner of the section.[6]

[5]Manual (1902) 233.
[6]Manual (1902) 233.

§ 149. **Lots in sections in west boundary of township.**—The lots in sections in west boundary of a township should be numbered progressively from north to south. Fig. 21.

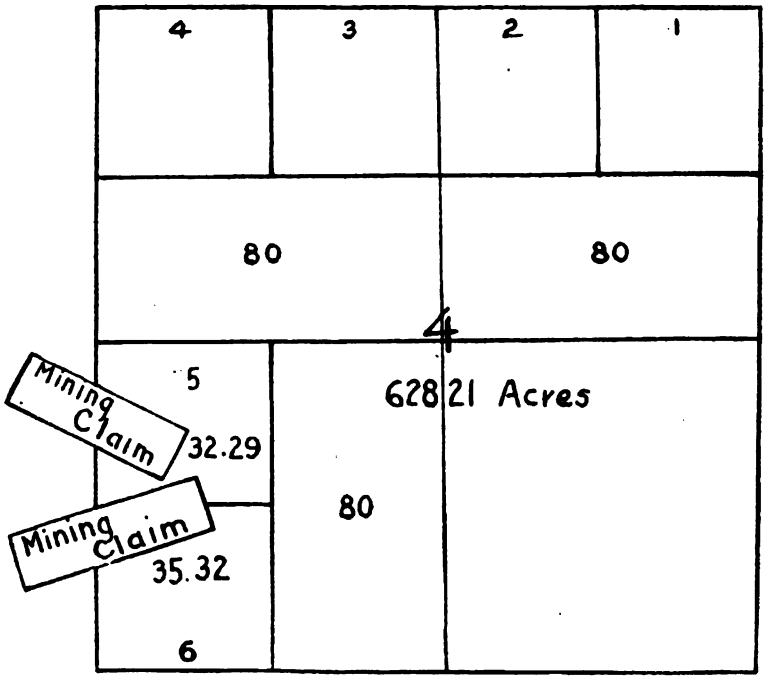


Fig. 20

Note that the lots are numbered from north to south and that number 1 is in the northwest corner of section and that number 4 is in the southwest corner of section.[7]

§ 150. **Lots in section six.**—Owing to the position of lots in section six a different rule, in a way, prevails, though it will be seen to be a combination of the rules for numbering the

[7]Manual (1902) 233.

lots in sections on both the north and west boundaries of a township. In such cases the lots are numbered progressively from the northeast corner to the southwest corner thereof.

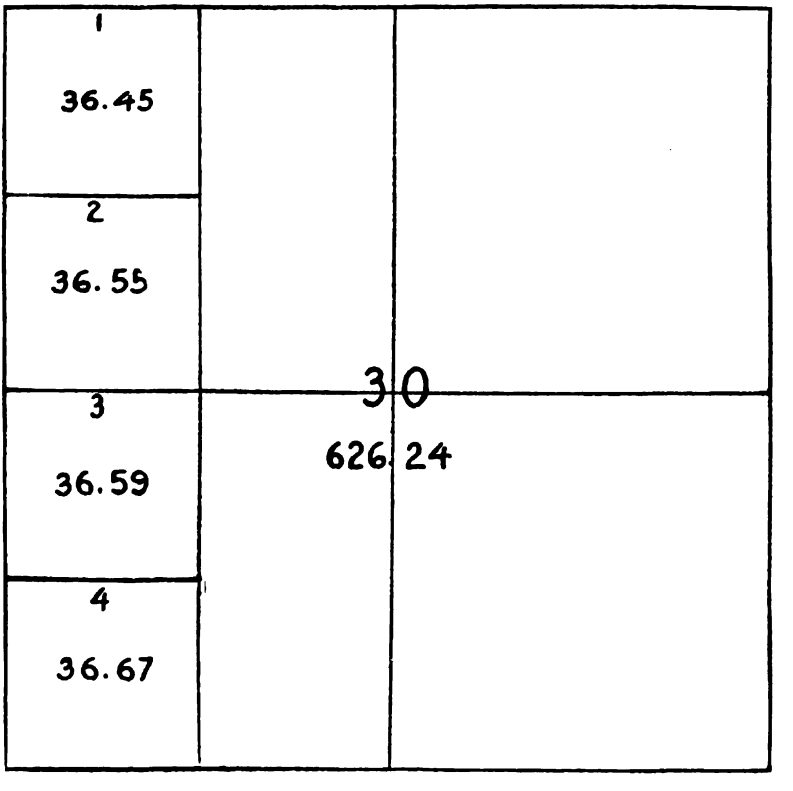


Fig. 21

Lot 1 will be found in northeast corner and lot 7 in southwest corner of the section. Fig. 22. In all such sections the southeast quarter of the northwest quarter will contain forty acres in area.[8]

[8]Manual (1902) 233.

§ 151. **Fractional sections bordering on reservations.**— Fractional lots in sections bordering on reservations, parks,

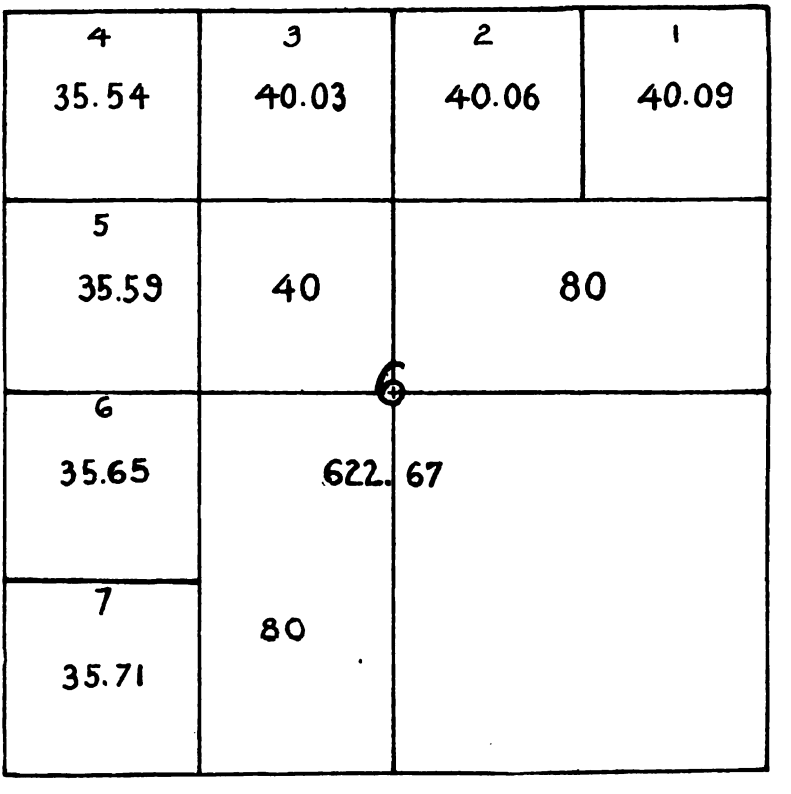


Fig. 22

etc., will contain no part of such reservations or parks but will be bounded thereby and will be numbered progressively pursuant to the rules given herein. Fig. 23. Observe that number 1 is in northeast corner of section and the numbers follow progressively to the west.

§ 152. **Mining or other claims.**—In cases where mining or other irregular claims were taken up prior to the general survey, that part of the area of such claim or claims, lying

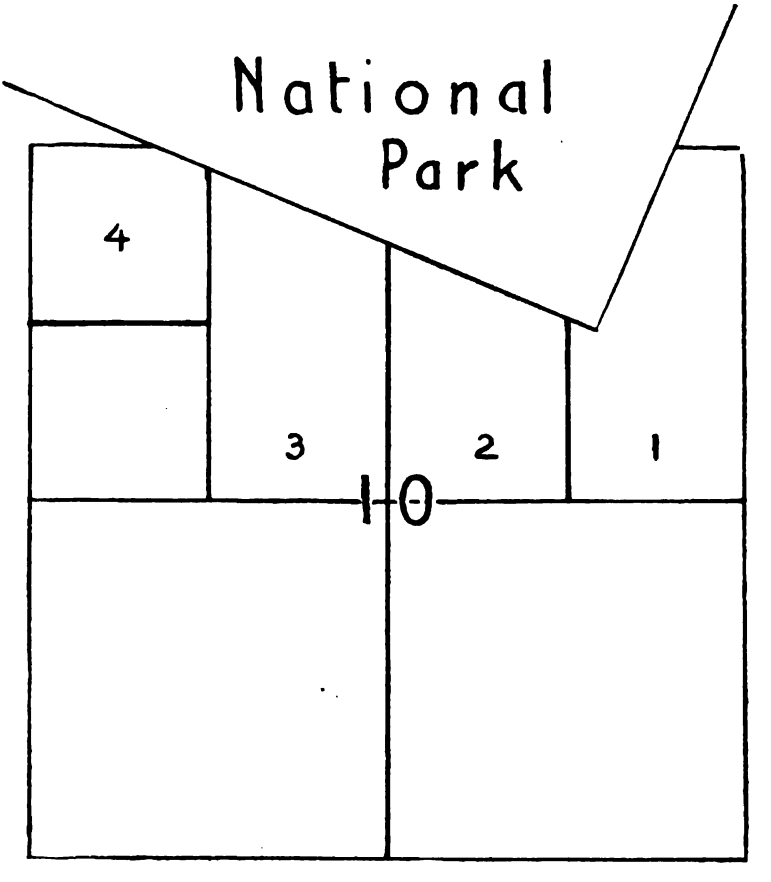


Fig. 23

within a section, were taken from that particular section and the remainder of the particular subdivision made into lots, area computed and number given. Should this happen to be

in a section otherwise fractional, such lots will be numbered progressively after the regular fractional lots. Figs. 20-25.[9]

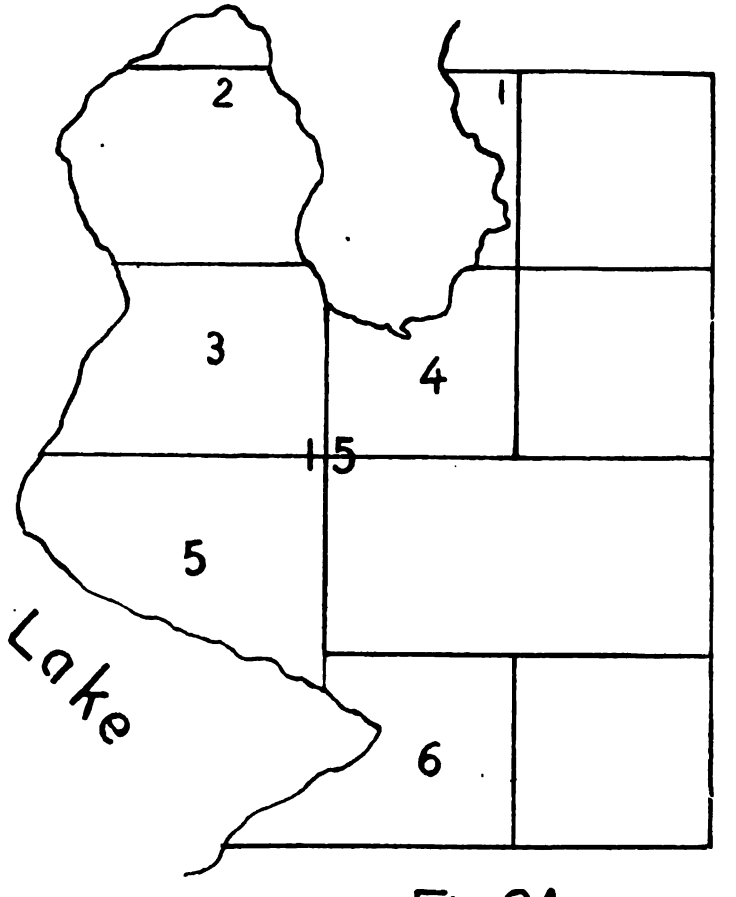


Fig. 24

Observe in Fig. 20 the manner of running out and numbering the lots adjacent to the mining claims therein. If these claims

[9]Manual (1902) 234.

were in a section, not otherwise fractional, lots 5 and 6 would be numbered 1 and 2 respectively.

§ 153. **Uniform system of numbering lots.**—It will be observed from what has already been said that the government requires a uniform system of numbering lots under similar conditions. The instructions of the land department provide: "To secure a uniform system for numbering lots of fractional sections, including those above specified,[10] imagine the section divided by three equidistant parallel latitudinal lines into four strips or tiers, numbered from north to south; then, beginning with the eastern lot of the north tier, call it No. 1, and continue the numbering west through the tier, then east in the second, west in the third, and east in the fourth tier. A lot extending north and south through two, or parts of two tiers, will be numbered in the tier containing its greater area. In case any tier is without numbered lots, the numbering will be continued in the next tier to the south." Figs. 19 and 24. The rules go on to say that; "This method of numbering will apply to any part of a section, regardless of the relative situation of a part or parts surveyed and lotted under prior contract; in this same case the lot numbers will be a continuation of the series already initiated. A section that has been partly surveyed at different times should have no duplication of lot numbers."[11]

§ 154. **In irregular surveys.**—In those cases of irregular surveys where the length of a township from north to south exceeds the lawful length of 480 chains, or the width from east to west exceeds 480 chains minus the proper allowance for convergency of meridians, to such an extent as to require two or more tiers of lots along the north boundary, or two or more ranges of lots along the west boundary, as the case may

[10]Ante §§ 141a-153 Inclusive.
[11]Manual (1902) 234.

be, the entire north or west portions of such sections beyond the quarter-corner are required to be lotted. Each such lot

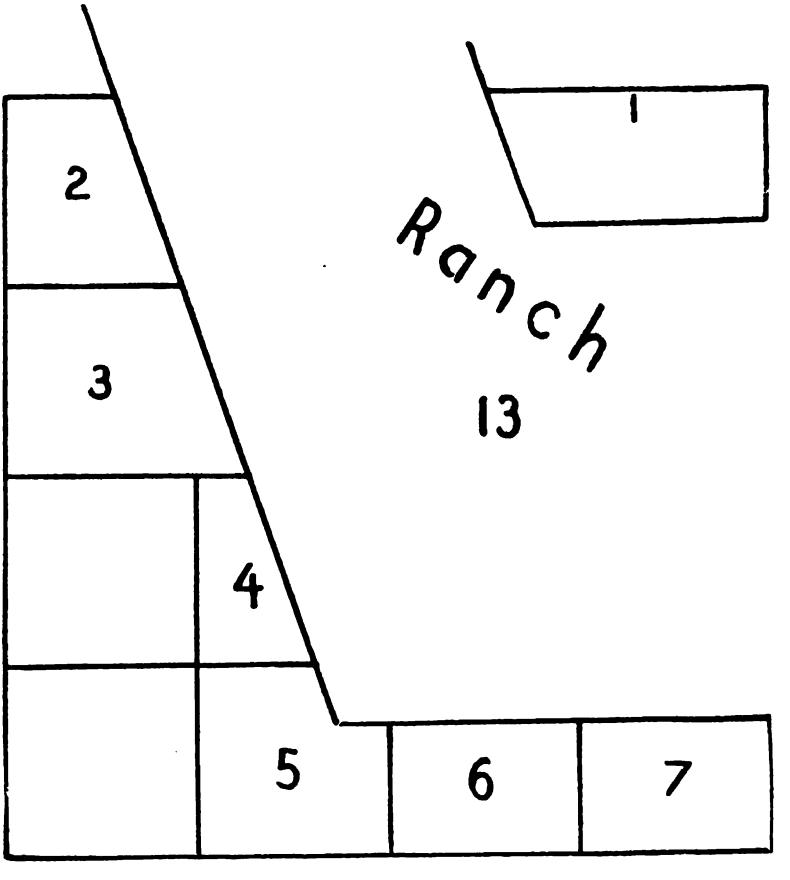


Fig 25

will be assigned its proper number. The area of each such lot shall be given on the plat.

So also, in case the length or width of the township falls so far short of the legal dimensions as to eliminate the north

or west half of any section situated as above, that part of the section remaining will be treated in a similar manner. That is it will be lotted and the lots properly numbered and entered on the plat.[12]

§ 155. **Areas in certain cases omitted.**—The instructions require that in a regular township the southeast quarter of northwest quarter of section 6 shall have its required area of forty acres inserted in all cases. The half-quarter sections in north tier and west range of sections shall have the proper area of eighty acres inserted. The areas of quarter-sections will be omitted, except when two lines of legal subdivisions of either one hundred and sixty, eighty, or forty acre tracts intersect each other on or so near a meander or boundary line that the general inaccuracies of drawing would leave the area of said tracts in doubt, the plats will, in such cases, for clearness, give the proposed areas of such quarter, half-quarter, and quarter-quarter sections. Figs. 20, 21, 22, 26, and 27.[13]

§ 156. **Areas of lots.**—The government has provided a method of computation of the areas of the lots in sections under various circumstances. It will be assumed that in regular sections, other than section six, that, in excess of the regularly subdivided four hundred and eighty acres in a section, there will be a trapezoid along the north or west sides thereof of a width of approximately 20 chains and a length of 80 chains. Each of said strips will be divided into four lots by drawing lines every 20 chains, parallel to the ends of the tracts. For purposes of computation these will be regarded as parallel to each other. With exception of section six the south boundaries of sections along north side of township will be assumed to be 80 chains. When these conditions obtain the areas of lots

[12]Manual (1902) 235.
[13]Manual (1902) 236-7.

will be determined in this manner: "Divide the difference between the widths of the ends of the tract by 4; if 3 remains, increase the hundredths figure of the quotient by a unit; in

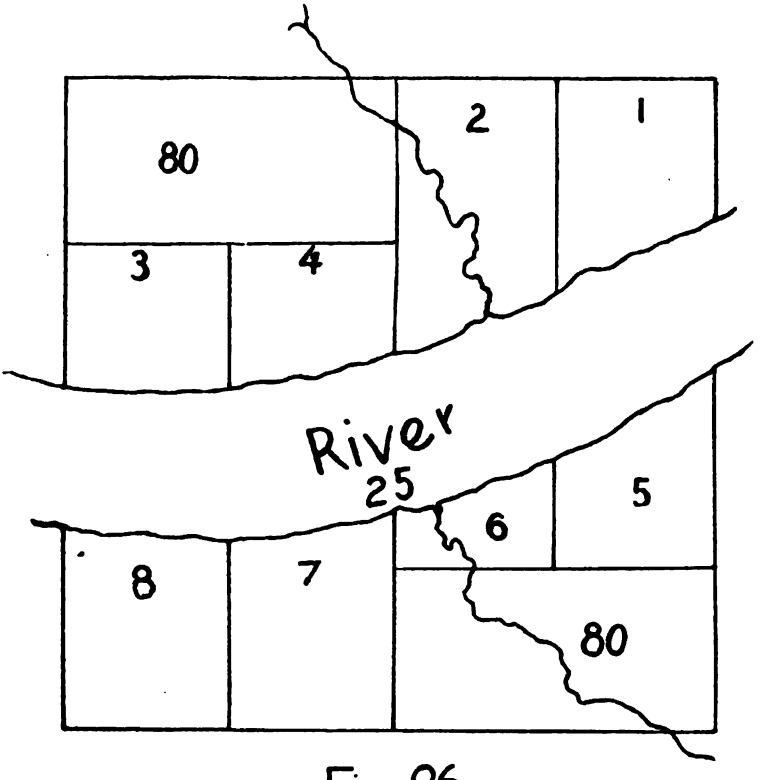


Fig 26

all other cases disregard the fraction; call the quotient thus obtained, "d"; then take the end widths of the tract in chains and decimals of a chain, the areas of the lots, in acres will be: Of the smallest lot; twice the width of the lesser end, plus "d"; of the largest lot; twice the width of the greater end, minus "d"; of the smaller middle lot; sum of the widths of

the ends, minus "d"; of the large middle lot; sum of the widths of the end, plus "d".

"A check on computation may be had by multiplying the sum of the widths of the ends of the tract by 4; the product should agree exactly with the total area of the four lots.

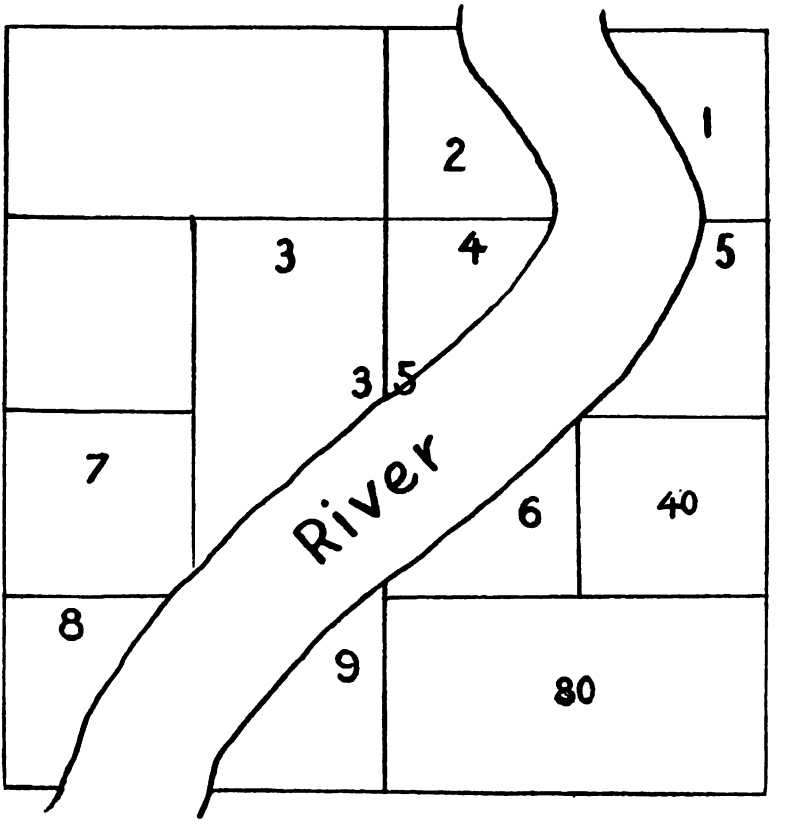


Fig. 27

"The proper application of the above rule will always give areas correct to the nearest hundredths of an acre," say the

advices from the commissioner, "and, as the use of fractions is entirely avoided, the method is recommended for its simplicity and accuracy."[14]

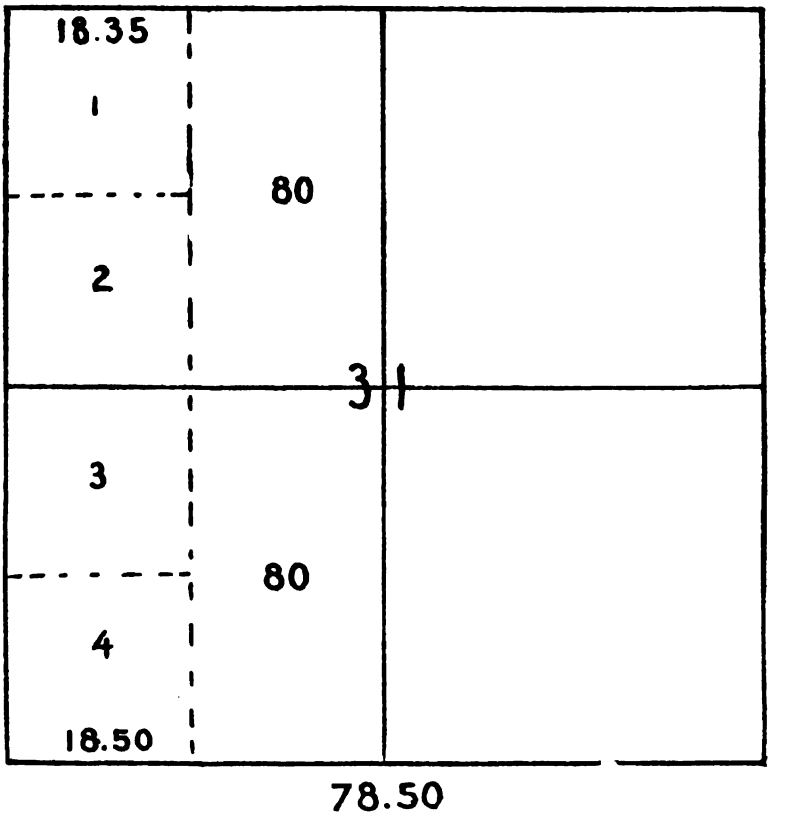


Fig 28

As an example take section 31 of a given township and refer to Fig. 28 for data. It will be seen that the width of the smallest lot (lot 1) is 18.35 chains; that lot 4 is the largest lot and

[14]Manual (1902) 243.

its width on the widest end is 18.50 chains. Then we have: 18.35 x 2 plus .04 equals 36.74 acres, being the area of lot 1; 18.50 x 2 minus .04 equals 36.96 acres, being the area of lot

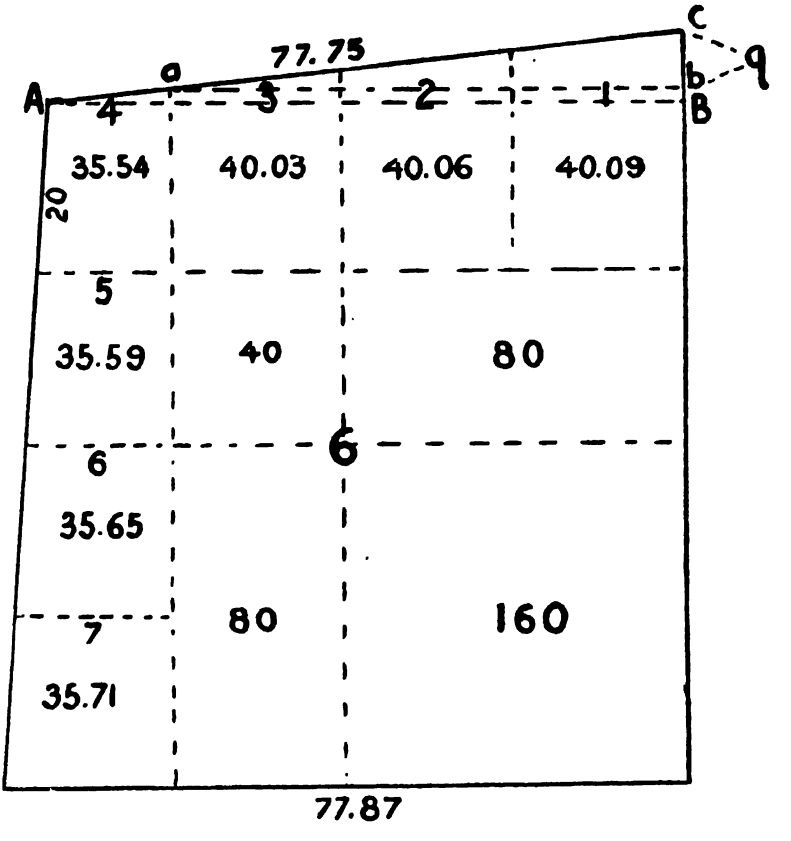


Fig. 29

4; 18.50 plus 18.35 minus .04 equals 36.81 acres, area of lot 2; 18.50 plus 18.35 plus .04 equals 36.89 acres, area of lot 3. It will be seen that the difference between the two ends is .15; divide this by 4, and we have a quotient of 3 and 3 over.

Hence, add .01 to .03 we have .04, which is represented by "d." Then desiring to check up and prove the work we have: (18.35 plus 18.50) x 4 equals 147.40 acres, being the area of the four lots.[15] The simplicity of the rules needs no demonstration.

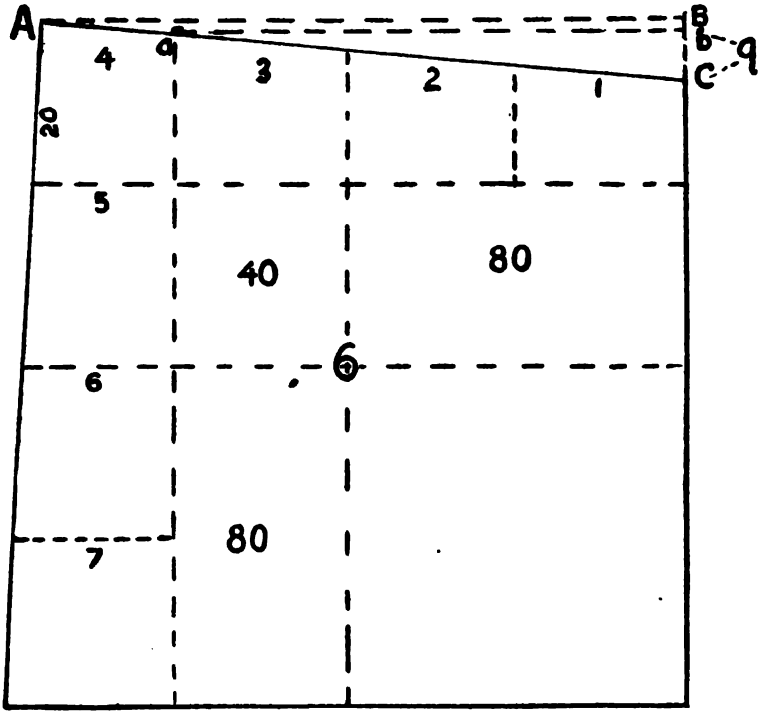


Fig 30

§ 157. **Areas of lots in section six.**—The areas of lots 5, 6 and 7 in Section six may be obtained by the same rule, except in those cases where the township closes on a base line or standard parallel. The area of lot 4 in section 6 may be obtained by the same rule where both meridional boundaries

[15]Manual (1902) 243.

are 80 chains in length. In the latter instance lots 1, 2 and 3 will be equal and, of course, each will contain forty acres. Figs. 29 and 30.

In all cases where the west boundary of section 6 is 80 chains and the east boundary either greater or less than 80 chains, the areas of lots 1, 2, 3 and 4 will be computed in the following manner: Refer to Figs. 29 and 30. Determine the difference "q" between the east boundaries of lots 1 and 4 by the following proportion: North boundary of section 6 : Difference of meridional boundaries of section 6 :: 60 chains : q. Then will east boundary of lot 4 equal east boundary of lot 1 plus or minus q. Add q when the east boundary of section 6 is less than 80 chains. Fig. 30. But subtract q when the east boundary of section 6 is greater than 80 chains. Fig. 29. Now take 1/3 of q and add it to the shorter east boundary of lot 1 or 4, as conditions may require, and thus determine one of the meridional boundaries of lot 2. Add 1/3 of q to this sum, and thus obtain length of opposite side of lot 2. Compute the areas of lots 1, 2 and 3 by taking the sums of their respective meridional boundaries, expressed in chains and decimals of chains, which will express the area in acres. Figs. 29 and 30. Compute the area of lot 4 by multiplying its mean width by its mean length.[16]

Then to test the entire work take the sum of the latitudinal boundaries and multiply by 4. To this product add the area of the small triangle C. A. B., (Fig. 29), if the east boundary is greater than 80 chains; but subtract the area of C. A. B. if the east boundary is less than 80 chains. Fig. 30. These operations, if correctly performed "will give the true area of the section." This should agree with the total area of the legal subdivision, obtained as directed above.[17]

[16]Manual (1902) 244.
[17]Manual (1902) 244.

Example 2. Additional illustrations.—To the end that the reader may have exact knowledge of the method of computing the areas of lots in section 6 under varied conditions we make the following suggestions based upon the Rules of the Commissioner: Referring to Figures 29 and 30 the reader is directed to—

Compute areas of lots 5, 6, and 7 of section 6, as directed in this work, and illustrated by the example.[18] Then arrange the following proportional statement:

Chs. Chs. Chs. Chs.
77.75 : 0.05 :: 60.00 : q. q equals 0.0386; 1/3 q = 0.0129

Then proceed as follows:

Chs. Chs. Chs.
20.0500—0.0386=20.01, being the east boundary of lot 4
20.0114+0.0129=20.02, being the east boundary of lot 3
20.0243+0.0129=20.04, being the east boundary of lot 2
20.05+20.04=40.09 area lot 1; 20.04+20.02=40.06 area lot 2
20.02+20.01=40.03 area lot 3

$$\frac{20.00+20.01}{2} \times \frac{17.75+17.78}{2} = 35.54 \text{ area of lot 4}$$

Also (17.78+17.87) x 3= 106.95, area of lots 5, 6 and 7
Add area regular subdivisions 360.00 acres

Total 622.67 acres, area of section 6

Chs. Chs.
Test. (77.87+77.75) x 4= 622.48
77.75 x 0.025= 0.19, area triangle C. A. B.

Total 622.67, area Sec. 6. Fig. 29.[19]

[18]Ante § 156.
[19]Manual (1902) 244.

§ 158. **Areas of tracts forty chains long north or west boundary.**—It will be seen that the area of a tract 40 chains long, adjoining the north or west boundaries of a township, (except in northwest quarter of section 6) will be equal to the sum of the parallel boundaries expressed in chains and decimals, multiplied by 2. As an example refer to Fig. 29. The areas of lots 6 and 7 would be (17.87 plus 17.81) x 3 or 71.36 acres.

It will be evident that the area of a tract 60 chains long, situated as described herein, (excluding lot 4 of section 6), may be found by multiplying the sum of its parallel boundaries, expressed in chains and decimals of a chain by 3; *Example.* See Fig. 29. The south boundary of lot 4 equals 17.78 chains; south boundary lot 7 equals 17.87 chains, area of lots 5, 6 and 7, is (17.78 plus 17.87) x 2 equals 106.95 acres. See example 2 above.

The reader will note that the areas of quarter-sections adjoining north and west boundaries of a township (excluding northwest quarter of Sec. 6), may be found by multiplying the sum of their parallel boundaries, taken in chains and decimals of a chain, by 2; *example;* the area of S. W. 1/4 of Sec. 6, (Fig. 29), is (37.87 plus 37.81) x 2, which equals 151.36 acres.

In fact the areas of any section along the north and west boundaries of a regular township (except section 6), may be found by multiplying the sum of the parallel boundaries, expressed in chains and decimals of a chain, by 4; *example;* The area of section 31, (Fig. 28), is (78.35 plus 78.50) x 4, which equals 627.40 acres. It should be borne in mind that subdivisions closing irregularly to the south or east exterior boundary are to be computed by similar methods.[20]

§ 159. **In conclusion.**—We have been thus explicit in the consideration of the question of the formation, numbering

[20]Manual (1902) 245.

and computation of the areas of fractional lots in order that, not only the surveyor but the bar, may fully understand the principles applied in making the original surveys in such cases. It is thought that the suggestions herein will be ample to enable members of the two professions to gain a correct idea of the principles involved. This information is necessary to enable the local surveyor to correctly subdivide a fractional section into lots, and also to enable the bar to decide whether or not the stated survey is correctly made. A careful study of the several diagrams to which reference is made, is essential to a correct understanding of the text.

CHAPTER IX

STREAMS, LAKES AND PONDS

Sec.
160. Generally.
161. Ponds.
162. Lakes.
163. Navigable rivers public highways.
164. In some jurisdictions state owns beds of navigable rivers below high-water mark.
165. State owns the beds of lakes.
166. Low-water mark is the boundary in some states.
167. May hold to water's edge.
168. May take to thread of stream.
169. The owner of the shore owns unsurveyed islands.
170. Where lake is a boundary.

§ 160. **Generally.**—The rights of proprietors of lands bounded on streams, lakes, and ponds are various and valuable. Among such rights we note the right to fish, to harvest ice, to build docks, to anchor booms, to build mills, to land boats, and various other rights. The extent of such rights depends on circumstances, but the courts of the various jurisdictions do not agree on the rights in the water or of the bed of such waters to be accorded to the owner of the shore thereof, either in navigable or nonnavigable lakes or streams. Hence, the rulings of the court of last resort in any jurisdiction must be consulted for the law of that jurisdiction. It is the rule and so conceded that when a state is admitted into the Union, unless restricted by the act so admitting it, that all of the lakes and streams therein become the property of the state and subject to its jurisdiction. This, of course, must be taken to mean subject to the right of the federal government to navigate such

waters. Likewise the beds of such streams and lakes in some states, become the property of the state; in others, the beds of streams become the property of the riparian owner, subject to the right of the public to navigate those streams.

Broadly speaking, there are two lines of decisions applicable in the different states to such riparian rights. Some jurisdictions hold that the riparian proprietor owns the bed and the right to the water resting thereon to the "thread of the stream" or center line of both navigable and nonnavigable streams, subject, of course, to the rights of the public to navigate and use said streams.[1] And nonnavigable lakes are governed by a similar rule in those states. On the other hand, the supreme court of the state of Iowa, holds that the title of the riparian proprietor in navigable streams extends only to the line of high-water mark and that the state owns the bed thereof.[2] And the same rule has been followed in Arkansas.[3] The Arkansas court says: "A riparian owner upon a navigable stream, deriving title from the United States, takes only to high-water mark, and not to the middle of the stream, the title to the bed of the stream being in the state." The reader will note also, that some of the courts distinguish between navigable and nonnavigable waters. The rights of riparian proprietors to alluvial, dry shores, the beds of dried up lakes, and the right to follow the water in a stream or lake as it recedes will be treated at length in a subsequent chapter.[4]

It has been held by the Missouri court that a riparian proprietor of lands in that state owns to low-water mark on navigable rivers.[5] It will be noted that this is a slight variation of

[1]Lovingston v. St. Clair, 64 Ill. 56, 16 Am. Rep. 516; Lorman v. Benson, 8 Mich. 18.

[2]Barney v. Keokuk, 94 U. S. 324, 24 L. ed. 224.

[3]St. Louis & C. R. Co. v. Ramsey, 53 Ark. 314, 13 S. W. 931, 8 L. R. A. 559, 22 Am. St. 195.

[4]Post ch. XIV.

[5]Frank v. Goddin, 193 Mo. 390, 91 S. W. 1057, 112 Am. St. 493.

the rule of the Iowa court referred to above. The Pennsylvania court holds that a grant of land on a nonnavigable stream calls for title to the "thread of the stream," and, if navigable, to low-water mark.[6] So also the Nebraska court holds that a grant of land on a nonnavigable stream extends to the "thread of the stream."[7] But the Wisconsin court holds that a definite boundary, like a nonnavigable river, called for in a deed, conveys the land to the "thread of the stream."[8] So too, the Wisconsin court holds that the owner of property on the bank of a meandered lake holds only to the water line.[9] In the latter case the court says: "It is well settled in this state that grants by the United States, of lands bounded by a meandered lake or other permanent body of water, convey title to the natural shore of the body of water, while the title to the land which is under the water is in the state." And this is the rule in that state irrespective of the size of the body of water.[10] So too, it is the rule that each state determines for itself to what extent it will retain and exercise its prerogative over lands under streams and bodies of water.[11]

§ 161. **Ponds.**—A pond is a body of water naturally or artificially confined, and, usually, of smaller area than a lake.[12] Webster defines a pond as, "A natural or artificial body of fresh water." Ordinarily we think of a pond as a small body of water and not meandered, although this is not necessarily the case. It is said that the difference between a stream and a

[6]Edwards v. Woodruff, 25 Pa. Sup. Ct. 575.

[7]McBride v. Whitaker, 65 Nebr. 137, 90 N. W. 966.

[8]Lampman v. Van Alstyne, 94 Wis. 417, 69 N. W. 171.

[9]Ne-Pee Nauk Club v. Wilson, 96 Wis. 290, 71 N. W. 661.

[10]Ne-Pee Nauk Club v. Wilson, 96 Wis. 290, 71 N. W. 661.

[11]Hardin v. Jordan, 140 U. S. 371, 35 L. ed. 428, 11 Sup. Ct. 808; McLennan v. Prentice, 85 Wis. 427, 55 N. W. 764.

[12]Peters v. State, 96 Tenn. 682, 36 S. W. 399, 33 L. R. A. 114. See 31 Cyc. 911.

pond or lake is that in the latter case, the water is, in its natural state, substantially at rest.[13] The rights of shore owners in the waters and beds of a pond depends on surrounding circumstances. The courts of New York have held that a tract of land bounded by a natural pond extends to the center of the pond.[14] This would seem to be the rule of reason. And evidently if a party owned land on every side of a pond he would own the entire pond and the bed thereof. In case of artificial ponds, the thread of the stream flowing through the pond is the boundary.[15] But in Massachusetts the line of the shore of a natural pond is the boundary.[16] This rule has been followed by some other states but the weight of authority and the better rule, as to natural ponds, is that the riparian owner takes to the center of the pond. By the common law and by the latest decisions of the land department of the United States government, the owner of land on the bank of a non-navigable lake or pond takes to the center.[17]

§ 162. **Lakes.**—Webster defines a lake as, "A large collection of water in a cavity or hollow." Naturally there is a vast difference between a large lake and a small lake as to the rights of the riparian owners. Still shore owners of all lakes have certain well defined rights which can not be taken away without just compensation. As we have seen the various jurisdictions do not agree as to the extent of the rights of riparian owners. It would seem that the better rule in the

[13]2 Far. Waters, 1561; Trustees of schools v. Schroll, 120 Ill. 509, 12 N. E. 243, 60 Am. Rep. 575.

[14]Gouverneur v. National Ice Co., 134 N. Y 355, 31 N. E. 865, 18 L. R. A. 695, 30 Am. St. 669.

[15]Waterman v. Johnson, 13 Pick. (Mass.) 261.

[16]Waterman v. Johnson, 13 Pick. (Mass.) 261.

[17]Olson v. Huntarmer, 6 S. Dak. 364, 61 N. W. 479; Hardin v. Jordan, 140 U. S. 371, 35 L. ed. 428, 11 Supt. Ct. 808; Lamprey v. Metcalf, 52 Minn. 181, 53 N. W. 1139, 18 L. R. A. 670, 38 Am. St., 541; Cook v. McClure, 58 N. Y. 437, 17 Am. Rep. 270; Fuller v. Dauphin, 124 Ill. 542, 16 N. E. 917, 7 Am. St. 388.

case of navigable lakes is that the riparian proprietor owns to low-water mark and of nonnavigable lakes that he owns to the center of the lake subject to the rights of the public to pass over and along the same. While the state in many jurisdictions is conceded to be the owner of the lakes and beds of lakes within its jurisdiction still the riparian owner may follow the receding waters of such lake to the center thereof. As to a division of the dry beds of a lake between the riparian owners the reader is referred to a subsequent chapter of this work.[18] Should a lake lie between two states or nations the boundary line between them would be the center line of the lake, and each would have title to such center line.[19] And it is said, that the sovereignty of the state of Wisconsin, extends to the center of Lake Michigan, and its laws, so far as they do not conflict with the laws of the United States, are operative within such limits.[20] The rule relative to the boundary between states and nations may be changed by treaty, by prior discovery and possession, and by cession of the sovereign power and the "three-mile" limit is not usually applicable to such lakes.[21] The navigation of the lake is open to both nations, but each may enforce its own laws so far as its territorial limits go.[22] In the Ohio case the court held that the northern boundary of the state of Ohio was at the line fixed between the United States and Canada and that the jurisdiction of the state extended to that point for the preservation of peace and the punishment of crime.

§ 163. **Navigable rivers—Public highways.**—By the act of May, 1796, amended by act of March, 1803, the Congress of

[18]Post ch. XIV.

[19]Thorson v. Peterson, 10 Biss, 530, 9 Fed. 517; The Sultana v. Chapman, 5 Wis. 454.

[20]Bigelow v. Nickerson, 70 Fed. 113, 30 L. R. A. 336.

[21]Illinois Central Ry. Co. v. Illinois, 146 U. S. 387, 36 L. ed. 1018, 13 Sup. Ct. 110.

[22]I Farnham Waters, 28; Edson v. Crangle, 62 Ohio St. 49, 56 N. E. 647.

the United States provided that; "All navigable rivers, within the territory occupied by the public lands, shall remain and be public highways; and, in all cases where the opposite banks of any streams not navigable belong to different persons, the stream and the bed thereof shall become common to both."[23] Evidently this act applies to streams running through public lands only. So, also plainly, the common-law rule as to riparian ownership applies to nonnavigable streams so situated but not to navigable streams. The latter are public highways under the act.[24] But the owners of lands on opposite banks of nonnavigable streams, under this section, are deemed to hold in severalty to the thread of the stream.[25] This section makes the rivers public highways free from the interference of riparian owners and still such owners have their rights to the bed of the stream subject to the public interests.[26]

§ 164. **In some jurisdictions state owns beds of navigable rivers below high-water mark.**—Upon the territory becoming a state, such state became the owner of the navigable streams and beds thereof below high-water mark and it exercises its sovereign rights over the same, subject to the rights of the people, for commercial purposes.[27] The state of Nebraska holds that the rights of the riparian owner in navigable streams are bounded by the banks of the stream.[28]

At common law the beds of streams, not navigable, belonged

[23]Barnes' Fed. Code, § 4336.

[24]St. Paul R. Co. v. Schurmeir, 7 Wall. (U. S.), 272 19 L. ed. 74; Shively v. Bowlby, 152 U. S. 1, 38 L. ed. 331, 14 Sup. Ct. 548.

[25]Indiana v. Milk Co., 11 Fed. 389.

[26]Johnson v. Johnson, 14 Idaho 561, 95 Pac. 499, 24 L. R. A. (N. S.) 1240.

[27]Barney v. Keokuk, 94 U. S. 324, 24 L. ed. 224; State v. Nolegs, 40 Okla. 479, 139 Pac. 943; State v. Mincie Pulp Co., 119 Tenn. 47, 104 S. W. 437.

[28]Kinkead v. Turgeon, 74 Nebr. 573, 104 N. W. 1061; 109 N. W. 744, 1 L. R. A. (N. S.) 762.

to the riparian owner but the beds of navigable streams, being those in which the tide ebbs and flows, belonged to the state.[29] It must be remembered, therefore, at common law comparatively few streams were navigable.

The reason for the divergence of views of courts of the various jurisdictions of the United States as to the ownership of the beds of streams is due to the fact that at common law those streams, only, were navigable in which the tide ebbs and flows as set forth above. All others were deemed nonnavigable. In this country, however, it is generally held that streams are navigable which are capable of being navigated for commercial purposes.[30] It is said in the latter case that, "In the states of the American Union in which the English common law prevails there is a conflict of opinion in the courts of last resort as to whether the title to beds of fresh-water rivers, which are navigable, in fact, remains in the state or in the riparian owners of the stream. This conflict arose when some of the colonial courts, and later the supreme court of the United States, made a departure from the common-law test of navigability (that it should be a stream in which the tide ebbs and flows, or an "arm of the sea,") and made the test a practical question of fact as to whether or not the stream was actually navigable. When this departure was made, the conflict arose in the different states as to what rule should be applied to the ownership of the beds of streams which were navigable in fact, but not at common law. As has been stated, at common law the bed of a river in which the tide ebbed and flowed was held by the King, while the title to the bed of all fresh-water rivers was in the riparian owners. Some of the American courts notably Illinois, Connecticut, Delaware, Georgia, Kentucky, Maryland and Maine, applied the doc-

[29]Kinkead v. Turgeon, 74 Nebr. 573, 104 N. W. 1061; 109 N. W. 744, 1 L. R. A. (N. S.) 762.

[30]Kinkead v. Turgeon, 74 Nebr. 573, 104 N. W. 1061; 109 N. W. 744, 1 L. R. A. (N. S.) 762.

trine that, as these fresh-water streams were nonnavigable at common law, the common-law rule as to the title to fresh-water streams apply, and consequently that each riparian owner took to the middle thread of the stream."[31]

That court goes on to say: "The opposite view found favor in the decisions of the supreme courts of Pennsylvania, Iowa, Missouri, Kansas, Minnesota, California, Nevada, Arkansas, Alabama, Tennessee, Indiana and others."[32] These decisions proceed on the theory that, as these streams are navigable in fact, the rule applicable to the bed of tide-water streams should apply, and the title be placed in the state. The other decisions proceed on the theory that as these streams were not navigable at common law the rule as to the title to the beds of such streams should remain where the common law placed it, in the riparian owner. In our opinion, there are good grounds for both positions. However, it will be noted that practically all of the states hold that the riparian owner will hold the alluvial formations and his boundary will follow the stream as it recedes.

§ 165. **State owns the beds of lakes.**—The title and the dominion of the beds of the Great Lakes belong to the state adjacent to which the same is located.[33] The same rule is applied to beds of Great Lakes as applied at common law to the bed of tide waters.[34] Riparian owners along the Great

[31]Adams v. Pease, 2 Conn. 481; Braxon v. Bressler, 64 Ill. 488; Delaney v. Boston, 2 Har. (Del.) 489; Hendrick v. Cook, 4 Ga. 241.

[32]McManus v. Carmichael, 3 Iowa, 1; Carson v. Blazer, 2 Bin. (Pa.) 475; Wood v. Fowler, 26 Kans. 682, 40 Am. Rep. 330; Lamme v. Buse, 70 Mo. 463; Schurmeier v. St. Paul Ry. Co., 10 Minn. 82, 88 Am. Dec. 59, 7 Wall. (U. S.) 272, 19 L. ed. 74; Packer v. Bird, 71 Cal. 134, 11 Pac. 873; Shoemaker v. Hatch, 13 Nev. 261; Bullock v. Wilson, 2 Port. (Ala.) 436; Bainbridge v. Sherlock, 29 Ind. 364, 95 Am. Dec. 644.

[33]People v. Kirk, 162 Ill. 138, 45 N. E. 830, 53 Am. St. 277; State v. Venice of America Land Co., 160 Mich. 680, 125 N. W. 770.

[34]Chicago Transit Co. v. Campbell, 110 Ill. App. 366.

Lakes own only to the meander line.[35] And it is held, in Wisconsin, that submerged land along a lake belongs to the state in trust for the people of the state.[36] And it is the law that the interior department can not grant title to private parties of land covered by a navigable lake and such patent to that extent would be void. The patentee would take only to the water's edge.[37] In the latter case the court says: "In this state it has been repeatedly held that the riparian proprietor upon navigable lakes and ponds takes title of the land only to the water's edge."[38] And it is the law that the state and the national government are powerless to convey the beds of lakes, and such a conveyance is inoperative as to all such lands.[39] So, too, the title to the bed of Lake Michigan, below high-water mark, is in the state.[40] And whether the title of the proprietor of lands bordering on a navigable river extends to high-water mark, low-water mark, or the middle of the stream must be determined by the laws of the state where the land lies.[41]

§ 166. **Low-water mark is the boundary in some states.**— It will be seen, by an examination of the authorities, that the courts are at variance as to whether the owner of the shore of a navigable lake or stream takes to high-water mark or low-water mark, or in fact, to the thread of a stream, if a stream.

[35]Ainsworth v. Munoskong Hunting &c. Club, 159 Mich. 61, 123 N. W. 802.

[36]Pewaukee v. Savoy, 103 Wis. 271, 79 N. W. 436, 50 L. R. A. 836, 74 Am. St. 859.

[37]Mendota Club v. Anderson, 101 Wis. 479, 78 N. W. 185.

[38]Delaplaine v. Chicago & C. Ry. Co., 42 Wis. 214, 24 Am. Rep. 386; Priewe v. Wisconsin State &c. Improvement Co., 93 Wis. 534, 67 N. W. 918, 33 L. R. A. 645.

[39]Illinois Steel Co. v. Bilot, 109 Wis. 418, 84 N. W. 855, 85 N. W. 402, 83 Am. St. 905.

[40]Beck Co. v. Milwaukee, 139 Wis. 340, 120 N. W. 293, 131 Am. St. 1061.

[41]Kaukauna Water Power Co. v. Green Bay &c. Canal Co., 142 U. S. 254, 35 L. ed. 1004, 12 Sup. Ct. 173.

Many courts hold that the owner of land bordering on a navigable stream takes to low-water mark.[42] The reason for this difference undoubtedly is traceable to the old common-law idea of navigability as suggested in the preceding chapter.

§ 167. **May hold to water's edge.**—Other states hold that the riparian owner on a navigable stream owns to the water's edge.[43] So also, a patent from the government which makes the margin of a stream, navigable, in fact, the boundary, conveys title to the water's edge.[44] And a grant of land by the United States adjoining an unnavigable lake, under a state law where riparian owners take to the water's edge, would not transfer land lying under the water of the lake.[45] And where land bounded by a navigable river, has been surveyed, the river meandered, the owner holding under a patent from the United States will take only to the bank.[46] And the grantee in a deed or patent along the Mississippi river in the state of Missouri takes to the water's edge only.[47] The reader will do well to carefully study the cases cited herein.

§ 168. **May take to thread of stream.**—We come now to a consideration of a third class of cases from another group of states. As heretofore suggested, it is held in many states that title of a riparian owner to land bordering on a stream not navigable at common law but navigable in fact, extends to the

[42]Webb v. Demopolis, 95 Ala. 116, 13 So. 289, 21 L. R. A. 62; Schurmeir v. St. Paul & C. Ry. Co., 10 Minn. 82, 88 Am. Dec. 59, affd. 74 U. S. 272, 19 L. ed. 74, Stinson v. Butler, 4 Blackf. (Ind.) 285.

[43]Cox v. Arnold, 129 Mo. 337, 31 S. W. 592, 50 Am. St. 450; Frank v. Goddin, 193 Mo. 390, 91 S. W. 1057, 112 Am. St. 493.

[44]Packer v. Bird, 137 U. S. 661, 34 L. ed. 819, 11 Sup. Ct. 210.

[45]Marshal Dental Mfg. Co. v. State, 226 U. S. 460, 57 L. ed. 300, 33 Sup. Ct. 168; State v. Jones, 143 Iowa, 398, 122 N. W. 241.

[46]Wood v. Fowler, 26 Kans. 682, 40 Am. Rep. 330.

[47]Cooley v. Golden, 117 Mo. 33, 23 S. W. 100, 21 L. R. A. 300.

middle or thread of the stream.[48] Of course, this must be taken to mean subject to the right of the public to pass over and along the stream. A riparian owner of lands on a stream, navigable in fact, or nonnavigable takes to the center of the thread of the stream, as we will see in some states.[49] And land conveyed by the federal government without reservation on a navigable stream carries title to the middle line of the stream, we are told.[50] We, too, find the supreme court of Nebraska holding: "That the rights of riparian owners upon the Missouri river to land formed by accretion are the same as if the river were not navigable."[51] And the Michigan court has held that a riparian owner on a stream navigable only in a modified sense for floating logs and lumber presumably owns to the center of the stream.[52] The Wisconsin court holds that a riparian proprietor on a navigable river—the Mississippi—in that state has absolute title to the land to the line of ordinary high-water mark; but as incident thereto, subject to the public rights, he owns to the center of the stream by the grace of the state, and the size of the river makes no difference in the right.[53] And where that river is a boundary between that state and another state, the riparian owner in that

[48]Middleton v. Pritchard, 3 (Scam.) Ill. 510, 38 Am. Dec. 112; Braxon v. Bressler, 64 Ill. 488; People v. Economy Light & P. Co., 241 Ill. 290, 89 N. E. 760; Webber v. Pere Marquette Boom Co., 62 Mich. 626, 30 N. W. 469; Walker v. Board of Public Works, 16 Ohio 540; Mariner v. Shulte, 13 Wis. 692; Green Bay & M. Canal Co. v. Telulah Paper Co., 140 Wis. 417, 122 N. W. 1062; St. Louis v. Rutz, 138 U. S. 226, 34 L. ed. 941, 11 Sup. Ct. 337.

[49]Lattig v. Scott, 17 Idaho 506, 107 Pac. 47; Stoner v. Rice, 121 Ind. 51, 22 N. E. 968, 6 L. R. A. 387.

[50]Butler v. Grand Rapids & I. R. Co., 85 Mich. 246, 48 N. W. 569, 24 Am. St. 84; Franzini v. Layland, 120 Wis. 72, 97 N. W. 499.

[51]Gill v. Lydick, 40 Nebr. 508, 59 N. W. 104; Kinkead v. Turgeon, 74 Nebr. 573, 104 N. W. 1061; 109 N. W. 744, 1 L. R. A. (N. S.) 762.

[52]Attorney General v. Evart Booming Co., 34 Mich. 462.

[53]Franzini v. Layland, 120 Wis. 72, 97 N. W. 499.

state owns to the boundary of the state of Wisconsin, that is to the center line of the main channel of that river.[54] Still it is held that a riparian owner on a navigable stream has only a qualified title to the bed of such stream.[55]

§ 169. **The owner of the shore owns unsurveyed islands.**— In those states where the patentee's title, by virtue of the rulings of the courts, extends to the thread of the stream it includes an unsurveyed island within such limits, and the federal government can not divest such title to the island by a subsequent survey and patent to another, in the absence of a showing that it was left unsurveyed by fraud or mistake.[56]

In the case of Chandos v. Mack cited herein, the facts briefly were that the plaintiff was the owner of lots 3 and 4 in a certain section, on the west bank of the Wisconsin river; that between the west bank and the thread of the river, the main channel thereof, there was an island some 1,250 feet long and 70 to 300 feet wide, lying lengthwise of the river. This island had never been surveyed by the government. Other islands in the immediate vicinity had been surveyed. This island was shown on the government plat on file. The plaintiff claimed the island by reason of his riparian rights to the thread of the stream. Upon a careful consideration of the case the court held that the island belonged to the plaintiff. The court says in that case: "The inference certainly is very strong, when the government leaves a small island in a navigable river, lying between the shore and the middle of the stream, unsurveyed, and sells all the surveyed islands, and all the lands on both sides of the river, that it intends to abandon

[54]Franzini v. Layland, 120 Wis. 72, 97 N. W. 499.

[55]Diana Shooting Club v. Husting, 156 Wis. 261, 145 N. W. 816, Ann. Cas. 1915C, 1148.

[56]Grand Rapids & I. Ry. Co. v. Butler, 159 U. S. 87, 40 L. ed. 85, 15 Sup. Ct. 991; Butler v. Grand Rapids & I. R. Co., 85 Mich. 246, 48 N. W. 569; 24 Am. St. 84. Chandos v. Mack, 77 Wis. 573, 46 N. W. 803, 10 L. R. A. 207, 20 Am. St. 139.

all right to such unsurveyed island, and let it pass to the riparian owners of lands on the river as an incident to its grant."[57] Other cases are to the same effect.[58] And the Michigan court holds similarly.[59]

§ 170. **Where lake is a boundary.**—It is said that riparian rights on the Great Lakes are the same, in theory, as upon navigable streams and there is no such thing as high- and low-water mark in the state of Michigan. And it is said that the submerged lands are appurtenant to the upland so far as their limits can be identified; but the state law governs as to such rights. The state can forbid any erections in navigable waters and navigable streams and on the Great Lakes.[60] And it is held in that state that the title of the riparian owner extends to the middle line of the lake or stream of the inland waters.[61] And the soil under the waters of inland lakes of that state belongs to the riparian owners and does not belong to the state.[62] It is also held that private ownership of lands bounded on navigable fresh water is not restricted to the meander line.[63] But in the state of Minnesota where a lake is navigable in fact the riparian owners take fee to the water's edge only.[64] However, if the lake was nonnavigable in fact the riparian owner would take to the center of the lake.[65] But even in that state the riparian owner is entitled to all accretions and would hold to the water's edge.[66]

[57]Farris v. Bentley, 141 Wis. 671, 124 N. W. 1003.

[58]Hobart v. Hall, 174 Fed. 433.

[59]Church v. Case, 122 Mich. 554, 81 N. W. 334.

[60]Lincoln v. Davis, 53 Mich. 375. 19 N. W. 103, 51 Am. Rep. 116.

[61]Webber v. Pere Marquette Boom Co., 62 Mich. 626, 30 N. W. 469.

[62]Clute v. Fisher, 65 Mich. 48, 31 N. W. 614.

[63]Lorman v. Benson, 8 Mich. 18.

[64]Lamprey v. State, 52 Minn. 181, 53 N. W. 1139, 18 L. R. A. 670, 38 Am. St. 541.

[65]Lamprey v. State, 52 Minn. 181, 53 N. W. 1139, 18 L. R. A. 670, 30 Am. St. 541.

[66]Hanson v. Rice, 88 Minn. 273, 92 N. W. 982.

In the case of Hanson v. Rice, supra, the question for decision was as to the boundary between Lots 2, 4, 6 and 7 of Section 4 of a certain township. Plaintiff owned Lot 7 and the defendant was the owner of Lots 2 and 4 of the same sec-

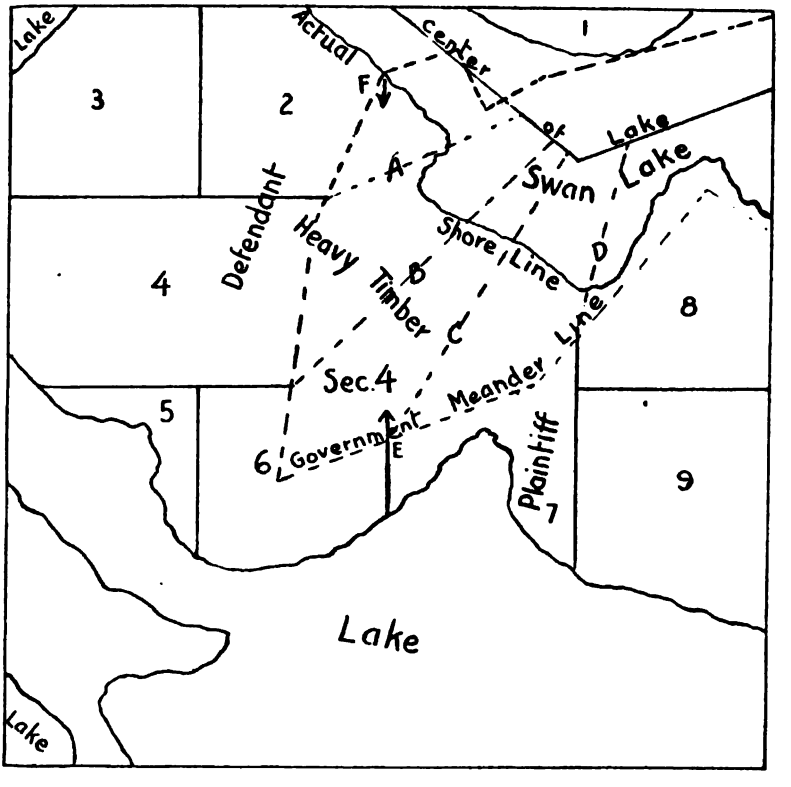


Fig. 31

tion. Fig. 31. The government meander line is shown some distance from the actual shore line of the lake and was so run at the time of the original survey. The lower court held that the line E-F was the boundary between plaintiff and defendant but the higher court reversed this and held that the riparian

owners took to the center of the lake and could not be cut off from the water. While the appellate court does not undertake to decide in advance the exact lines of division to be run, yet it does hold that the lines of boundary should converge toward the center of the lake something along the order shown in the diagram. If so divided "A" would represent the line between lots 2 and 4; "B" the line between lots 4 and 6, and "C" the line between lots 6 and 7, and "D" the line between lots 7 and 8. This would, to our mind, make an equitable division of the accretion or, which is the same thing, the land between the meander line and the actual shore of the lake. Such division would be founded on the great weight of authority and would be equitable to all of the riparian owners. This seems to be the main consideration in a division of accretion, alluvial, "made land," dock privileges, the dry beds of lakes, etc. For an extensive discussion of this branch of the work the reader is referred to a subsequent chapter of the book.[67]

[67]Post ch. XIV.

CHAPTER X

EXCESS AND DEFICIENCY

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194. Permanent monuments must not be moved in apportioning excess or deficiency.

§ 171. **Generally.**—The surveyor is daily confronted with some exceedingly nice questions, which arise with reference to the excess or deficiency of certain lines or tracts, shown by recent measurements, as compared with the original measure-

ment. Very often these questions are difficult of solution and the surveyor is in doubt as to the proper manner of apportioning such excess or deficiency. However, the courts have spoken plainly on the various phases of this most interesting subject, as the following pages will show.

We can refer only to a few of the decided cases in the several jurisdictions. We have selected some of the most difficult and have tried to cover the subject in a general way so as to aid the professions in solving the many perplexing propositions which may arise in actual practice.

Of course every surveyor and attorney is familiar with the general rule that any excess or deficiency of a line found by a recent measurement, must be distributed between the several subdivisions of that line in proportion to the original measurement. But the professions can not follow this rule blindly, as there are many variations and some apparent exceptions.

Some confusion has arisen with the courts in connection with the disposition of excess or deficiency in a resurvey of sections bordering on the north or west sides of a township, and especially on the half of the section on the north and west sides thereof. It must be remembered that any excess or deficiency in such cases must be distributed over the entire distance between known points *according to the original government measurement.* If the original measurement was 39 chains and the recent measurement was 41 chains it would not do to place the 1/16th corner 20 chains from the 1/4 corner (recent measurement) but it would have to be apportioned "according to original measurement." This 1/16th corner should, therefore, be placed 20 chains, *original* measurement, from the 1/4 corner or 21.02 1/2 chains *recent* measurement. The professions should remember this. The reader is referred to a later section in this chapter for a discussion of this branch of the subject.[1]

[1]Post § 173.

§ 172. **Excess or deficiency apportioned to several subdivisions.**—The supreme court of Nebraska lay down the rule with reference to excess and deficiency as follows: "On the line of the same survey, and between remote corners, the whole length of which is found to be variant from the length called for, it is not to be presumed that the variance was caused from a defective survey of any part, but it must be presumed, in the absence of circumstances showing the contrary, that it arose from imperfect measurement of the whole line, and such variance must be distributed between the several subdivisions of the line in proportion to their respective lengths."[2]

This is the general rule but there are many variations, as applied to different conditions. It must also be remembered that to invoke this rule in establishing the boundaries between the several subdivisions of the variant line, such boundary lines and the monuments originally established must be lost or obliterated. Various jurisdictions have held substantially to the Nebraska rule enunciated above.[3]

[2]Brooks v. Stanley, 66 Nebr. 826, 92 N. W. 1013.

[3]Francois v. Maloney, 56 Ill. 399; Martz v. Williams, 67 Ill. 306; Clayton v. Feig, 179 Ill. 534, 54 N. E. 149; Bailey v. Chamblin, 20 Ind. 33; Bennett v. Simon, 152 Ind. 490, 53 N. E. 649; McAlpine v. Reicheneker, 27 Kans. 257; Smith v. Prewit, 2 A. K. Marsh (Ky.) 155; Respass v. Parmers, 5 J. J. Marsh, (Ky.) 648; Choppin v. Manson, 144 Ky. 634, 139 S. W. 860; Brown v. Gay, 3 Maine, 126; Witham v. Cutts, 4 Maine, 31; Wyatt v. Savage, 11 Maine 429; Lincoln v. Edgecomb, 28 Maine 275; Long v. Merrill, 24 Pick. (Mass.) 157; Quinnin v. Reimers, 46 Mich. 605, 10 N. W. 35; Anderson v. Wirth, 131 Mich. 183, 91 N. W. 157; Porter v. Gaines, 151 Mo. 560, 52 S. W. 376; City of Maysville v. Truex, 235 Mo. 619, 139 S. W. 390; Wolfe v. Scarborough, 2 Ohio St. 361; Marsh v. Stephenson, 7 Ohio St. 264, 70 Am. Dec. 72; Parks v. Boynton, 98 Pa. 370; Welder v. Carroll, 29 Tex. 317; Sellers v. Reed, 46 Tex. 377; Ware v. McQuinn, 7 Tex. Civ. App. 107, 26 S. W. 126; Knippa v. Umlang, (Tex.) 27 S. W. 915; Austin v. Esquela Land Etc., Co. (Tex. Civ. App.) 107 S. W. 1138; Johnson v. Knippa, (Tex. Civ. App.) 127 S. W. 905; Booth v. Clark, 59 Wash. 229, 109 Pac. 805, Ann. Cas. 1912 A. 1272; O'Brien v. McGrane, 27 Wis. 446; Pereles v. Magoon, 78 Wis. 27, 46 N. W. 1047, 23 Am. St. 389; Lewis v. Prien, 98 Wis. 87, 73 N. W. 654.

In a case where the terms of a will devised all of a tract of land to persons named in severalty, and it was found, upon a survey being made, that there was an excess of acreage over the amount called for in the sum total of all devises, it was held that the excess would be apportioned to all of the devisees according as the amount each was to have received was a part of the whole.[4] And where there is an excess or deficiency in the actual land platted into lots and blocks, with intervening streets, and the original monuments indicating the limits of the lots have disappeared, each block should, if possible, be treated as distinct, and the shortage or surplusage apportioned among the lot owners, except in so far as possession has fixed the limits.[5] And in an action for the partition of a tract of land among several owners, in which judgment for partition was rendered by the court, and afterwards a survey was made, and thereafter all monuments and corners being lost, the court held, in a survey to determine the true boundary lines between the several tracts, that the main tract should be divided by apportioning the entire tract to all of the owners according to their respective holdings as adjudged, and that no one of the owners should be allowed any advantage over others in the division of excess acreage.[6]

§ 173. **Excess or deficiency in north half of section in northern tier of sections in a township.**—As heretofore intimated some confusion has arisen in applying this principle to sections in the northern tier of sections in a township, due to the failure of the courts to recognize the rule that the original survey must govern as to standard.[7] In all of such cases where there is an excess or deficiency, the general rule applies

[4]Bennett v. Simon, 152 Ind. 490, 53 N. E. 649.

[5]Anderson v. Wirth, 131 Mich. 183, 91 N. W. 157.

[6]McAlpine v. Reicheneker, 27 Kans. 257.

[7]Ante § 171.

and each owner is entitled to share in the excess and must bear his part of the deficiency, if any. The supreme court of Iowa has spoken plainly on this phase of the question.[8] In that case the court says: "But it is said that fractions in subdividing townships all fall on the north and west sides of the townships. That is true in making an entirely new survey; but this survey is not an original one; it does not exist at least on paper. The purchases have all been made in relation to it. The purchaser of a fractional forty-acre tract, located on the north or west side of a township, to the extent of the quantity designated in that fraction on the plat, and by the field-notes of the original survey, purchased, as definite and determined, a quantity of land having as fixed and determined relations to the whole tract, the survey of which is now lost, as did any one who purchased those several tracts not designated as fractional. The person who might purchase a tract on the north side of the township, designated on the official plat of the original survey as containing thirty-nine acres, had as perfect a vested right to receive thirty-nine full acres, as he who purchased a quarter section in any other part of this body had to the 160 acres called for by his patent."[9]

§ 174. **Deficiency in two northern tiers of sections.**—The matter in this section is but a modification of the doctrine laid down in the preceding section and where the government map and original field-notes show all the sections of the township to be full, but all monuments between the two northern tiers of sections are lost, and surveys based on established monuments in the township show that there is a shortage in the measurement north and south of those two tiers, it should not fall wholly on the northern tier, but should be apportioned between the two tiers, and this, although the survey was originally

[8]Moreland v. Page, 2 Iowa 139. 4 N. W. 136; Jones v. Kimble, 19
[9]Westphal v. Schultz, 48 Wis. 75, Wis. 429.

made by starting at the southeast corner of the township and working north. In this case the southern boundary of sections 10 and 11 and the northern boundary of sections 2 and 3 were known. The West 1/4 corner of section 2, West 1/4 corner of section 11, and the southwest corner of section 2 were lost. In order to find line between north-half and south-half of northwest quarter of section 2, the court decided that measurement must be made between the southwest corner of section 11 and the northwest corner of section 2, and the quarter-quarter corner between West 1/4 corner of section 2 and the northwest corner of section 2 should be established by a proportionate measurement of the whole line. That is, proportionate measurement should be made between known corners.[10] This is sound doctrine and is no doubt the law and should be followed in similar cases.

§ 175. **To establish sixteenth corner in north tier of sections in township.**—The discussion in this section is but an enlargement of the doctrine discussed in the two preceding sections. The Wisconsin court has laid down a general rule for determining the location of the sixteenth section corner of the north tier of sections in a township and can well be considered.[11] That court says: "Whenever a surveyor is required to subdivide a quarter-section bordering on the north boundary of a township, he shall establish the sixteenth-section corner at a distance 20 chains north of the quarter-section corner, unless the quarter-section shall exceed or be less (in area) than the original survey, in which case said sixteenth-section corner shall be established at a greater or less distance, in exact ratio to the excess or deficiency in the actual length of the quarter line." This branch of the subject is treated at length in a subsequent chapter of the work.[12]

[10]James v. Drew, 68 Miss. 518, 9 So. 293, 24 Am. St. 287.

[11]Westphal v. Schultz, 48 Wis. 75, 4 N. W. 136.

[12]Post ch. XIX.

§ 176. **Excess and deficiency apportioned.**—By apportioning the excess or deficiency of a tract of land, as compared with the original survey, each owner of any part of that tract will be given his equitable portion of any excess or will have to bear his equitable portion of any deficiency thereof. This is but just and the courts carry out this principle in all its decisions in a retracement of original lines. Owing to adverse holdings of some of the occupants the courts are not always able to enforce the principle, but, nevertheless, the principle is soundly rooted in the law and the courts give heed to it. In a case before the Indiana court the appellant was the owner of the south half, and appellee of the north half of a government subdivision. By the original survey and plat, the east line of said quarter was 38.05 chains and the west line 38.84 chains, and, while the half-quarter line was not established, the plat assigned 20 chains to the east and west line of the south half thereof and 18.02 chains to the east line at north end. Recent surveys made east line of quarter but 37 chains and west line but 37 chains, or in other words, said quarter contained 6.49 acres less than shown by original plat. Said plat marked the south part of said quarter as containing 80 acres, and the north part as containing 72.49 acres. Patents were issued to the respective parties for such amounts. It was held that the deficiency of 6.49 acres in said quarter should be deducted proportionately from the north and south halves, upon the basis of 80 and 72.49 acres respectively.[18]

§ 177. **A criticism of Missouri court's position on apportioning excess or deficiency north and west sections of township.**—States sometimes try to establish a rule by statute for the survey of sections along the north and west sides of a township contrary to the well established rule discussed above

[18]Caylor v. Luzadder, 137 Ind. 319, 36 N. E. 909, 45 Am. St. 183.

The courts have uniformly condemned such legislation as being contrary to law and invalid. The state of Missouri had a statute of that kind. It was before the court of that state, and, contrary to the almost universal position taken by courts, held the law to be valid. The court was in accord with the rule laid down in the statute. The surveyor who had done the work criticised by the court and contrary to the statute was right.[14]

In the former case the division line between the southwest and southeast quarters of section 18 was involved. The south quarter corner was lost. By the government field-notes the south side of the S. E. quarter was 40 chains, and the south line of S. W. quarter was 35.42 chains, or the whole length of the south line of the section was 75.42 chains. A recent survey made the distance 77.79 chains or an excess of 2.37 chains. The surveyor employed by defendant insisted that the south quarter corner should be fixed by apportioning the whole distance according to government survey and making the southeast quarter 41.25 chains along the south side, and the southwest quarter 36.54 chains along the south side. The surveyor for the plaintiff insisted that the S. E. quarter should be 40 chains (recent measure) on the south side, and all excess should be thrown on the south side of the S. W. quarter, making such quarter 37.79 chains on the south side. The court held in favor of the latter. This was clearly erroneous, and contrary to the rule laid down by the land office. The legislature fell into error in that case, and the court likewise erred in failing to distinguish between original and recent measure. This, of course, would be fatal to the work unless the original and recent measurements were the same.

The Indiana court had a similar question up for considera-

[14]Knight v. Elliott, 57 Mo. 317;
Vaughn v. Tate, 64 Mo. 491.

tion and properly apportioned the deficiency or deducted it from both tracts proportional to government survey.[15] Briefly the facts in that case were: A owned the north half and B the south half of the northwest quarter of section 1, in a certain township. The original survey showed the east line of such quarter-section to be 38.05 chains long, and the west line of such quarter to be 38.48 chains long. The plat assigned 20 chains to the east side and west side of S. W. quarter at south end thereof and 18.05 chains to said east line at north end and 18.48 chains to said west line at north end thereof. As a matter of fact, the east and west sides were but 37 chains recent measurement. The quarter contained 6.49 acres less than 160 acres. It was held that such deficiency should be deducted from both the south and north parts of the quarter according to the original measurement. This was proper.

§ 178. **Transfer of whole tract at same time—Excess divided.**—Courts are frequently called upon to construe descriptions in transfers, contracts, wills and other instruments. It is well to consider the court's constructions in such cases. In a Missouri case the court had under consideration a will wherein the following description was found: "It is also my will and desire that my said wife shall possess and enjoy my home tract of land consisting of 120 acres, more or less, so long as she lives, and that my desire is that my three sons, John, Enoch, and Thomas H. Porter, shall inherit by virtue of this will, said tract of land in the manner following, that is to say: I will to my son John forty acres of said tract on the north thereof so far as to include a spring of water thereon, and I will to my son, Enoch, the west half of the remaining 80 acres of land; and I further will to my son, Thomas H.

[15]Caylor v. Luzadder, 137 Ind. 319, 36 N. E. 909, 45 Am. St. 183.

Porter, the east 1/2 of the remaining 80 acres of land." It was held that the three boys took an equal part of the 120 acres of land, so called. If it fell short of the 120 acres each must bear his part of the deficiency; if it overrun the 120 acres each was entitled to his proportion of the excess. The idea was that the testator intended, as shown by the will, that the 120 acres, so-called, should be equally divided among the three sons.[16]

§ 179. **Hold in proportion to widths granted.**—If the lands lying between known monuments or boundaries, be conveyed at the same time by distances, whether in equal or unequal portions, to different grantees in severalty, there being no intermediate monuments, or other means of ascertaining the location, and the distances do not correspond with those named in the deeds, such grantees will hold in proportion to the widths granted them respectively, in the deeds, whether there be an excess or deficiency in the distance.[17] And in a case where lots adjoining each other on the east and west sides were sold at the same time to different purchasers, the sales being made by numbers and by a reference to a recorded plat; the division lines not being fixed by stakes or other marks; the deed of one grantee fixed the location of his lots by a known monument on the west, while the other grantee fixed the location of his lots by a reference to another fixed monument on the east, and each of the deeds described the respective lots as being of the width indicated by the plat, "more or less." Upon actual measurement of the ground, the width thus assigned to the lots severally will not make them meet, while the plat shows they were intended to meet, and the grantor intended to sell the whole premises. It was held that the surplus ground found to exist will be proportionally di-

[16]Porter v. Gaines, 151 Mo. 560, 52 S. W. 376.

[17]Mosher v. Berry, 30 Maine 83, 50 Am. Dec. 614.

vided among the several lots.[18] And in a case where fifty foot lots and the streets, as marked on the plat, occupy the entire space between the north and south boundaries of the tract, any excess should be apportioned among all of the lots along which the measurement was taken; and an excess or strip of four and one-half feet along a boundary line could not be claimed by the platters or those claiming under them.[19]

§ 180. **Apportioned among all of the lots.**—Where the actual frontage of a block exceeds the sum of the frontage of all of the lots therein as marked on the recorded plat, the excess should be apportioned among all of the lots and not given to a single lot whose frontage differs from the others.[20] The controversy in the Wisconsin case cited herein arose over the disposition of the excess of 3.48 feet on the east side of a block and 4 feet on the west side of a block of a recorded plat in the city of Milwaukee. The recorded plat had noted thereon the following: "All full lots are 60 feet wide and 127 feet deep; streets are 80 feet wide, except Main street, which is 100 feet wide. Scale 200 feet to the inch." Figure 32 gives substantially the data necessary to an understanding of the decision of the court. It will be noted on east end of lot 1 are the figures 74.6, and on the west end the figures 86.5. On the west end of lot 23 are the figures 36.6. According to original measure the frontage on Jefferson street was 674.6 feet, and the frontage on Milwaukee street was 696.6 feet. The frontage on Jefferson street by recent measure was 678.08 feet and on Milwaukee street it was 700.6 the controversy was as to the exact location of the line between lots 5 and 6. The defendants own the north 31 1/2

[18]Marsh v. Stephenson, 7 Ohio St. 264, 70 Am. Dec. 72.

[19]Booth v. Clark, 59 Wash. 229, 109 Pac. 805; Ann. Cas. 1912 A, 1272.

[20]Pereles v. Magoon, 78 Wis. 27, 46 N. W. 1047, 23 Am. St. 389; Caylor v. Luzadder, 137 Ind. 319, 36 N. E. 909, 45 Am. St. 183.

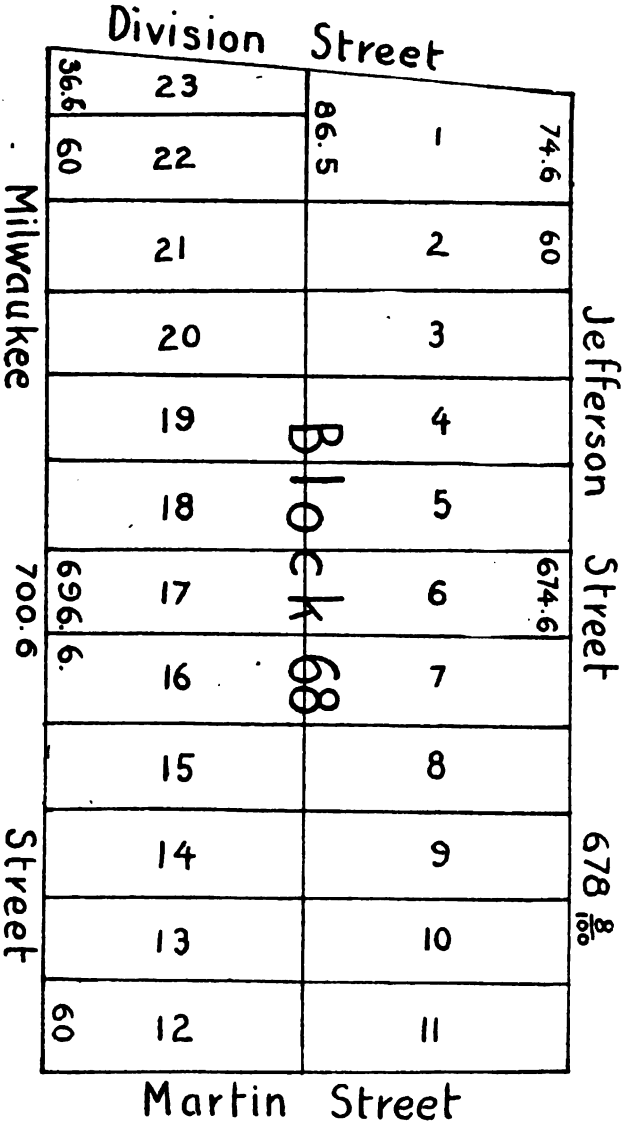

Division Street
36.6
23
86.5
1
74.6
60
22
60
21
2
60
20
3
19
4
18
5
700.6
696.6
17
6
674.6
16
7
15
8
14
9
678 8/100
13
10
60
12
11
Milwaukee
Jefferson Street
Street
Martin Street
Block 68

Fig. 32

feet of lot 6 and the buildings thereon. The plaintiff owns lot 5. The question was, as to whether or not the building on lot 6 extends over the true line between lots 5 and 6. The plaintiff contended that the barn extended over the true lines about 1 foot, while the defendants contended that the barn was wholly on lot 6. The plaintiff contended that the excess of 3.48 feet on the east side of the block should be given wholly to lot 1, while the defendants contended that such excess should be apportioned to all of the lots on that side of the block according to their respective widths. The court held that the excess should be apportioned among all of the lots on that side of the block. It must be remembered that the widths of all of the lots, as originally measured, were given on the plat. If the widths of lots 1 and 23 had not been given on the plat and had not been preserved the contention of the plaintiff might have been sustained. The Wisconsin court cites several cases approvingly.[21]

§ 181. **Excess or deficiency presumed to cover whole line.**—In a discussion of this subject it will not be out of place to consider briefly the presumption that will obtain in arriving at a decision in cases of excess or deficiency. The courts generally hold with substantial unanimity that where there is a variance between the recent measurement and the original measurement, it will be presumed, in the absence of circumstances to the contrary, that it arose from imperfect measurement of the whole line, and not from any particular part of such line; and such excess or deficiency must be distributed between the several lots in proportion to their respective

[21] Jones v. Kimble, 19 Wis. 429; O'Brien v. McGrane, 27 Wis. 446; Westphal v. Schultz, 48 Wis. 75, 4 N. W. 136; Miller v. Topeka Land Co., 44 Kans. 354, 24 Pac. 420; Moreland v. Page, 2 Iowa 139; Newcomb v. Lewis, 31 Iowa 488; Francois v. Maloney, 56 Ill. 399; Martz v. Williams, 67 Ill. 296; Wolfe v. Scarborough, 2 Ohi St. 361.

widths.[22] This is common sense and gives to all of the claimants their equitable rights. Furthermore, it always tends to fix the lines between the respective lots at the same points.

§ 182. **Where deeds show intent to convey whole tract.**— Where the same grantor conveys to two persons, to each one a lot of land limiting each to a certain number of rods, from opposite known boundaries in a direction to meet, if extended far enough, and by measurement the lots do not join, when it appears from the same deeds, that it was the intention that they should so join, a modification of the doctrine stated above will be followed. And still the doctrine is practically an affirmance of the same principle. In such cases a rule should be applied, which will divide the surplus, over the measurement named in the deeds, ascertained to exist, by actual measurement on the earth's surface, between the grantees, in proportion to the length of their respective lines, as stated in their deeds.[23]

§ 183. **Where tract supposed to contain a certain area.**— The same principle will be followed in those cases where the tract conveyed is supposed to have contained a certain area, say 100 acres, and afterwards it is discovered that such tract contains, a much greater area, say 130 acres. This was the case where commissioners were appointed by the court to divide a tract of land between two parties and they so undertook to divide such tract. The commissioners supposing the tract to contain 100 acres, assigned to one of the parties 55 acres on the north side of the tract, to extend southward until the quantity should be completed. They assigned to the other, 45 acres on the south side of the tract to extend northward until the area should be completed. At the time they made no survey of either parcel. Afterwards the whole tract was

[22]Newcomb v. Lewis, 31 Iowa 488.

[23]Lincoln v. Edgecombe, 28 Maine 275.

found to contain 130 acres of land. The court held that the surplus should be divided between the two tracts in proportion of 55 to 45.[24]

§ 184. **Deficiency of irregular lots not paralleling each other.**—It will frequently be necessary to apportion excess or deficiency in very irregular lots or parcels of land. In such cases the surveyor should apply that rule which will give to the several interested parties an equitable proportion of the excess or require them to bear an equitable proportion of the deficiency, if there be a deficiency. Where the lots do not parallel each other, the surveyor should use his best judgment. He should bring to bear on the subject his originality and use the principles herein set out in making divisions and running lines in such cases. In a Maine case there were three parties interested. A owned lot 7 given on the plan as 51 by 314 rods. B owned lot 71 given on the plan as 50 by 320 rods. These lots were supposed to have contained an area of 100 acres each. C owned lot 102, the width of which at the point in question was 25 rods. This width was where it joined lot 7 at the northwest corner thereof. The measurements were those given on the plan. The sum total of these measurements (length of lot 7 and widths of lots 71 and 102) was 389 rods. As a matter of fact, the actual measurement was but 343 rods, or 46 rods less than shown on the plan. See Fig. 33. The dotted line D-E on the figure represents the line upon which the measurement was taken. The actual length of this line was 343 rods; the plan showed the length to be 389 rods. The question before the court was as to who should bear the deficiency of 46 rods. The deeds of all three parties were from the same grantor, and all conveyed the land "according to the 'Holland Plan' ". In this case there were no monuments marking the boundaries between the several owners but the

[24] Witham v. Cutts, 4 Maine 31.

line at D was fixed and certain; so also was the point E on the bank of the river. It was held that the loss by deficiency must be borne by A, B, and C in proportion to the length of lot 7 and the widths of lots 71 and 102. The court found that lot

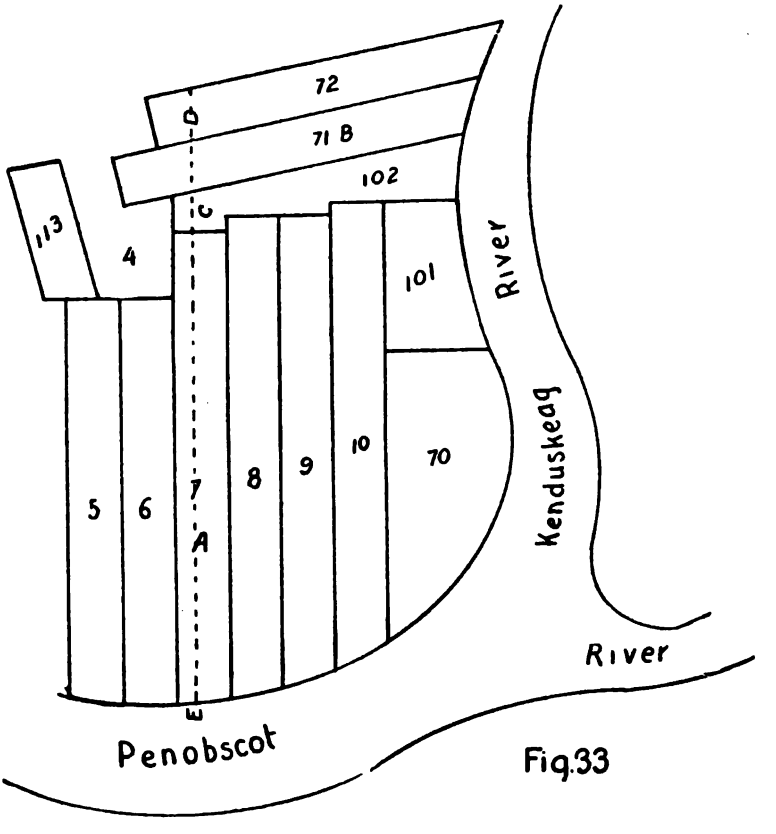


Fig. 33

7 should bear 37 and a fraction rods of the deficiency; lot 102 should bear a fraction less than 3 rods, and lot 71 a fraction over 5 rods. Thus all three lots bore proportionately the loss and their relative positions remained substantially the same.[25]

[25]Wyatt v. Savage, 11 Maine 429.

§ 185. **In certain cases the excess is not to be apportioned.**—In a Massachusetts case it was held that owing to the peculiar situation, the excess was not to be apportioned but all should be given to one of the parties.[26] In that case the owner of a tract of land bounded south by E street, and west by P street, conveyed the eastern portion to A by deed bounding it south on E street 35 feet, and west on the grantor's other land; and afterwards he deeded the remainder of the tract to B, bounding it south on E street 66 feet and west on P street. The south line on E street of the whole tract was, in fact, 18 inches more than 101 feet. Held that this excess was not to be apportioned between A and B but should go entirely to B. This decision was based on the theory that the tract conveyed to A being definite and certain and being first conveyed left the balance of the land in the grantor; that he subsequently sold all of said balance to B. If all of the tract had been conveyed at the same time to the two grantees, and there were no monuments marking the line between the two it is more than likely the court would have apportioned the excess to the two grantees. And it was held in a Maine case that if a conveyance of land, between certain bounds, are made to grantees in severalty, by distances, and in different proportions, but covering the whole extent, without intermediate monuments, and without other means of ascertaining the locations, and the distances do not correspond with those named in the deeds, they will hold in proportion to their respective grants, and this whether there be excess or a deficiency in the distances.[27]

[26]Bloch v. Pfaff, 101 Mass. 535.

[27]Mosher v. Berry, 30 Maine 90, citing Davis v. Rainsford, 17 Mass. 207; Makepeace v. Bancroft, 12 Mass. 469; Wyatt v. Savage, 11 Main, 429; Loring v. Norton, 8 Maine 61; Emerson v. Taylor, 9 Maine 42; Moody v. Nichols, 16 Maine 23; Rust v. Boston Mill Corp, 6 Pick (Mass.) 158; Proprietors of Kennebec Purchase v. Tiffany, 1 Maine 219; Brown v. Gay, 3 Maine 126; Clark v. Wethey, 19 Wend. (N. Y.) 320.

§ 186. **Error in platting village.**—In most cases the question of an excess or deficiency arises by reason of an error of the surveyor who made the original plat or by some inaccuracies in connection therewith. And where in platting a village it turns out, that, by mistake, the blocks are not so long as the plat represents, the courts of Michigan hold, as do other courts, that the deficiency must be apportioned between all of the lots of the block according to their apparent size as shown by the plat.[28] It will be apparent that in the event of an excess such excess must be apportioned between all of the lots of a block, thus following the general rule.

§ 187. **In some cases deficiency falls on fractional lots.**—We have heretofore treated this subject under certain conditions, where it was held that fractional lots were entitled to their just proportion of excess.[29] We come now to consider a case where fractional lots are required to bear the entire deficiency. The reason for the holding will be apparent as we advance. The professions should carefully distinguish between the two cases. And where a tract of land is platted upon a map as containing 50 lots, 48 of which appear as regular lots with widths of 25 feet, and two of which are the divided remnant of what remained of the entire tract, after platting the regular lots, and it happens that the tract is too small to leave the two lots as wide as they appear upon the map, after giving the regular lots their full width it was held that holders of titles to regular lots as they are platted upon the map are entitled to the full 25 feet, and the widths of the irregular lots must be diminished.[30] The reason for this holding is that the map shows on its face that the fractional lots were intended only to cover what remained after platting out the regular lots. If this so appears there is good reason for the rule, otherwise not.

[28]Quinnin v. Reimers, 46 Mich. 605, 10 N. W. 35.

[29]Ante § 180.

[30]Baldwin v. Shannon, 43 N. J. L. 596.

§ 188. **Deeds executed by same grantor at same time.**—It frequently happens that the court is called upon to decide questions of excess and deficiency where one part of the property is of greater value than the other. In a case where two deeds executed at the same time, by the same vendor, each calling for the line of the other as a division line, and calling for land within, but on opposite sides of the same survey, will be held to convey the entire tract, whether it be greater or less in quantity than estimated, and the excess must be divided between the two in proportion to the quantity conveyed to each, irrespective of values, in the absence of facts showing that equity would require the application of a different rule.[31] In the case last cited the supposed amount of land was 1,111 acres. It was owned by A. He sells to B 700 acres off north side of tract; and to C 411 acres off south side of tract. These tracts lay adjacent. The wording in the descriptions showed intent that the two tracts should come together. The excess was 74.4 acres. The court held that it should be divided in proportion of 700 to 411. The court declined to consider the difference in values of the two ends.

§ 189. **Excess in irregular tracts.**—In the division of excess or shortage in very irregular tracts of land very nice questions are put up to the surveyor and later to the bar and the courts. It is not always easy to lay down rules in advance which fit all cases. It is the purpose of the author to give instances of all kinds of problems heretofore before the courts for decision in the hope that the suggestions herein may aid the reader to devise the proper method to be followed under varied circumstances.

In a Pennsylvania case there was a considerable tract of land which was divided into four tracts and certain lines run and certain measurements taken and recorded. Tracts A, B

[31]Sellers v. Reed, 46 Tex. 377.

and C were laid out into a block but the lines of division were not run at the time. Conveyances were executed before lines were run. All three tracts had a common western boundary, the northern and southern ends of which were clearly marked on the ground. The total length of the common western boundary exceeded the aggregate lengths of the western lines of the tracts called for in the survey. Tracts A and B had also a common eastern boundary, the northern and southern ends of which called for corners on an adjacent tract, which corners were also found marked on the ground. The common eastern boundary line of tracts A and B was greater than the aggregate lengths of the western lines of those tracts as called for in the survey. Held, that in order to fix the division line between tracts A and B, the proper course was to divide proportionally between all of these tracts the surplus on the western line, and to do the same on the eastern line as between tracts A and B and then to run a line from west to east between those points, thus ascertained on the east and west lines respectively, to be the points of division between the tracts. Fig. 34.[82] In such figure the original lots platted are represented by the letters A, B and C. Lot A was platted as 380 rods, B as 430 rods, and C as 440 rods. No lines were run. There were known monuments at M, N, O and P and were undisputed. It was admitted that there was a surplus of 25 rods along the western line and 23.4 rods along the known eastern common boundary. The line O-P was the common eastern boundary of lots A and B and was given on the plat as 444 rods. Found on measurement to be 467.4 rods. The entire common western boundary was found to be 1,275 rods. The tracts marked, "Parks," "Lewis," "Boynton," are those carved out of the three original lots. Their boundaries are fixed by a reference to the points O and P in

[82]Parks v. Boynton, 98 Pa. 370.

part. The surplusage is represented by the tract "S." Line X-Y is the northern boundary of such surplusage. Line E-F is southern boundary of surplusage. Line R-K represents the line decided by the court to properly divide the surplusage

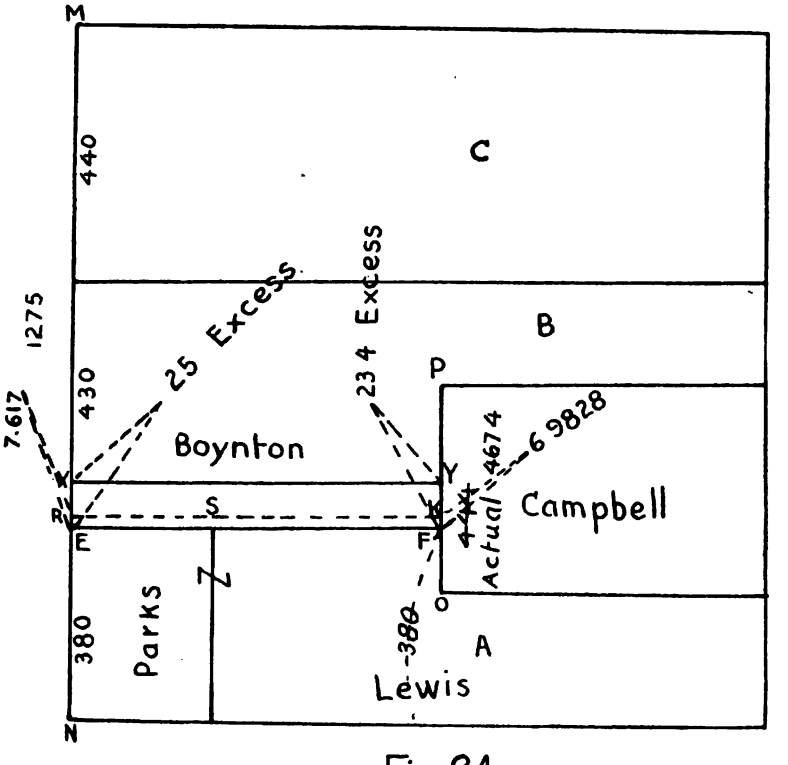


Fig. 34

so that lot A will be given its proper proportion of 7.617 rods on the west and 6.9828 rods on the east. The balance of the surplusage is divided between the other two lots as indicated. Thus it will be seen that by measuring for lot A from the southwest corner and for lots B and C from the northwest corner of the original tract there would be a surplusage of 25

rods on the west represented by "S." The surplusage on the east, as indicated, is 23.4 rods. The question is where should the boundary lines between lots A and B be established. Apportioning the 25 rods on the west we have 387.610, 438.589, and 448.795 rods in widths respectively for lots A, B and C. Measure north from southwest corner, Point N, 387.610 rods to point "R" which will be the point of division of the western line. Apportioning the excess of 23.4 rods on part of east boundary for the three lots will give 386.9828, 437.9017, and 448.5152 rods widths respectively of A, B, and C on east common boundary. To locate point in east boundary, measure north 6.9828 rods from F to point K, which fixes the point in east boundary. Connect R and K. R-K is the boundary between the original lots A and B.

§ 190. **Separate surveys and successive conveyances.**— Where an original tract of land is subdivided by distinct and separate surveys, the second survey is subservient to the first, and must bear any subsequently discovered deficiency, and, in such cases, the doctrine of apportionment can not be invoked. Likewise where there are separate conveyances at different periods from unplatted lands, by metes and bounds, the rule does not apply. The first conveyances would be entitled to the full amount purchased; the second next in order; the last would be entitled to all of the surplusage, if any, and must stand the deficiency, if any there be.[33] In the latter case cited the owner of a tract of land bounded by E street and west by P street conveyed the eastern portion to A by deed bounding it south on E street 30 feet and west on grantor's other land; and subsequently he deeded the rest of the tract to B, bounding it south on E street 66 feet, and west on P street. The southern line on E street of the whole tract was, in fact,

[33]Adams v. Wilson, 137 Ala. 632, 34 So. 831; Bloch v. Pfaff, 101 Mass. 535.

18 inches more than 99 feet, the length recorded on the plat. It was held that the excess of 18 inches was not to be apportioned but to go wholly to B.

The state of Washington has considered this question in a well-reasoned case and lays down the rule: "The grantee, first in time, of a portion of a tract set off by metes and bounds, without reference to other conveyances, is not required to yield any portion of his land to satisfy a deficiency in a subsequent overlapping grant from the common grantor; the rule of apportioning excess or deficiency having no application."[34] In all such cases the title should be traced back to a common grantor, in order to find the earlier conveyance, and a correct reading thereof, as well as a correct reading of subsequent conveyances.

§ 191. **Irregular lots may take all excess or stand all deficiency.**—In the event the irregular lot appears on the plat without notation of its size, and all of the other lots are regular and of definite size and so noted on the plat, it is the general rule that the irregular lot must bear any deficiency and is entitled to any excess found in a measurement of the original lines. This of course pre-supposes that the original lot lines and monuments of the particular tract have been lost or obliterated.[35]

In the latter case it was held that, where a tract of land is platted upon a map as containing 50 lots, 48 of which appear as regular lots, with width of 25 feet, and two of which are the divided remnant of what remained of the entire tract, after platting the regular lots, and it happens that the tract is too small to leave two lots as wide as they appear upon the map, after giving the regular lots their full widths, the holder of a title to the regular lots, as they are platted upon the map,

[34]Hruby v. Lonseth, 63 Wash. 589, 116 Pac. 26.

[35]Baldwin v. Shannon, 43 N. J. L. 596.

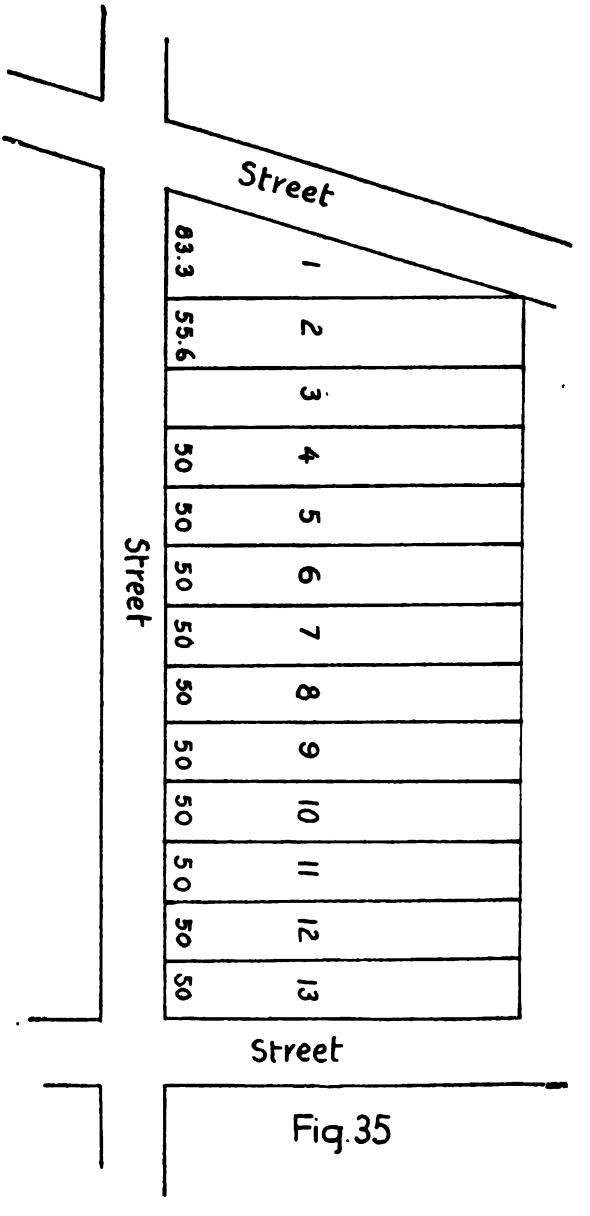

Street
83.3
1
55.6
2
3
50
4
50
5
50
6
50
7
50
8
50
9
50
10
50
11
50
12
50
13
Street
Street

Fig. 35

is entitled to the full 25 feet and the widths of the irregular lots must be diminished.

In another case it was held that, "Where the recorded plat of a block specifies the frontage of each lot, except as to one, any deficiency in the width of the block will fall on that lot, and the width will be the length of the block, minus the sum of the widths of the other lots."[36] Referring to Fig. 35, the distance given on the plat represents the distances taken from the recorded plat. It will be seen that lot 3 is the only lot whose width is not given on the plat. This lot then must suffer any deficiency and will gain any excess. The deficiency in the length of the block on the south side is 12 feet. This 12 feet must be taken from lot 3.

§ 192. **Replatting of original block.**—It must not be forgotten, however, that in case of replatting an original plat or parts thereof into smaller divisions, as for instance, platting a large lot of a certain block into new lots, the general rule applies. For instance, suppose lot 10, Fig. 35, should be replatted into four new lots and that the four new lots be sold successively until all were disposed of. If it be found that there was an excess in the lot according to original measurement, that excess must be divided between the several lots in the replatted portions. And if there be a deficiency all lots must bear their respective proportion of such deficiency. The same reason for this rule is to be found in the reason for the general rule, for in fact the replat becomes an "original" plat and the general rule applies.[37]

§ 193. **Dimensions each lot, except one irregular lot, declared.**—Where all of the lots in a block, except one irregular lot. are declared on the plat and there proves to be an excess that lot will be entitled to such excess, and if there be a de-

[36]Toudouze v. Keller, (Tex Civ. App.) 118 S. W. 185.

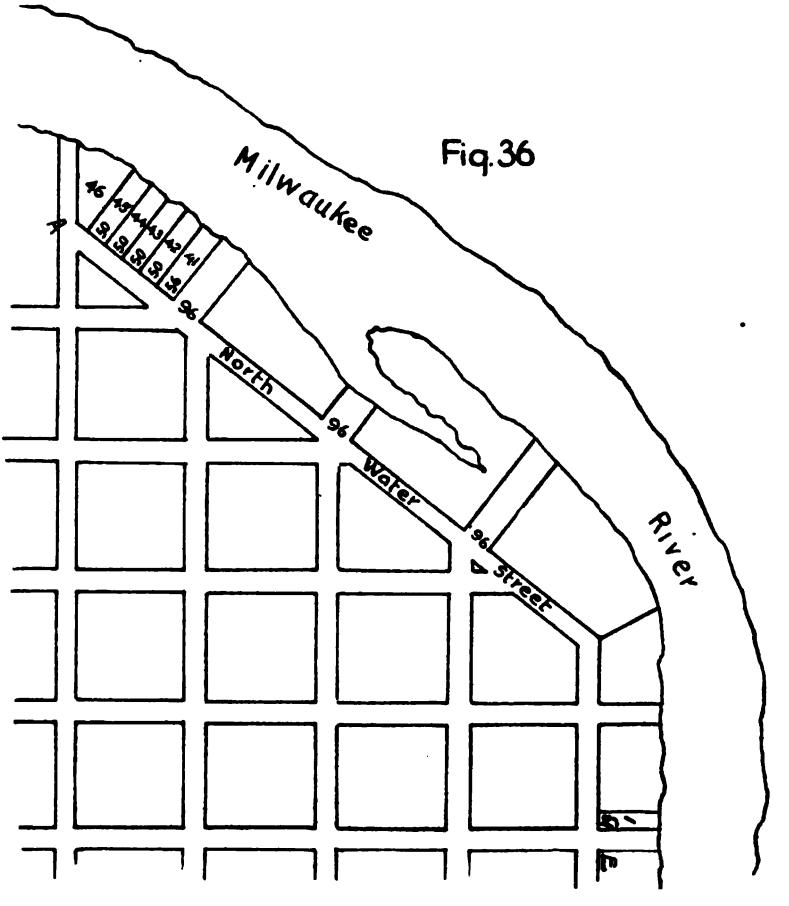
[37]O'Brien v. McGrane, 27 Wis. 446.

ficiency, that lot must bear such deficiency.[38] In a Wisconsin case the location of the corners of a strip of land on a river were undisputed. The land was platted in 1838, and the direction and distance of each intervening lot and street boundary from one of the points was stated on the plat, but the frontage of the last lot at the other end of the street was not given. A surveyor, on resurveying the strip, fixed the frontage of this lot and laid out the lines of the other lots, changing some of them from 50 to 65 feet. It was held that the survey was in violation of the rule that when, in subdividing a space, the surveyor declares the dimensions which he has given to each of the subdivisions and leaves a space without designating its dimensions, the presumption is that he placed the remainder into the unmeasured portion, and was not entitled to much weight as evidence of the original location of the lots.[39] See Fig. 36. The lot in dispute was lot 46. The points A and E were undisputed and were known. No other corners were known. The width of the irregular lot on river front, the last lot surveyed, 46, was not given on the plat and was not known. The widths of all of the other lots were given on the plat. The recent survey of the fronts of these lots made the distance from 35 to 40 feet greater than the sum total of all the lots whose widths were given on the plat plus a distance of some 5.83 feet which was allowed for the frontage of the irregular lot, 46. The defendants contended that the lots should be accorded the various widths given on the plat and that some 35 to 40 feet surplus, so to speak, given to lot 46, the last lot platted. The plaintiff claimed that the surplus should be apportioned among the several lots according as their widths respectively are to the whole length. But the court held adversely and in its opinion declared that the several

[38] Ante § 187.

[39] Pereles v. Gross, 126 Wis. 122, 105 N. W. 217, 110 Am. St. 901.

lots, aside from the last lot, 46, should be given the widths noted on the plat and all excess thrown on the irregular lot. The recent survey, made in 1876, shows that the distance from the northeast corner of lot 46 to the point E exceeds the total



of the widths of the several lots, as given in the original plat, by 37.96 feet, subject to the question whether the north end of Johnson street should be 62 or 66 feet. If only 62 feet the surplusage should be 4 feet less. The figures along the street at the ends of the lots are the distances given in the

original plat. The court holds that the original survey, having left the width of lot 46 unmarked on the plat, it must be presumed that all surplus, if any, belonged to that lot. One of the reasons why the recent surveyor made the arbitrary divisions of the widths of the several lots was that by so doing it tended to bring the streets running from the river to Water street, practically in line with those running south. But the court says that such fact was no evidence of the boundary of the lots unless coincidence of the street lines actually existed in the original plat, which was not the case. As to whether or not there was such coincidence of lines, was a question for the jury. In the diagram we have drawn the lot lines in one block only, that in which lot 46 is situated.

§ 194. **Permanent monuments must not be moved in apportioning excess or deficiency.**—It is the law that excess or deficiency can only be distributed between permanent or known monuments. It would not do to move any such points. If original monuments can be found they must remain. Hence, if a lot or tract of land has its corners fixed by monuments which can be found, and although such lot or tract is a part of a larger tract which over-runs original measurement, no part of the excess can be given to such lot or tract.[40] In the case later cited the facts were that in 1853, G was the owner of a tract of land 1,157 feet north and south by 1,188 feet east and west. He platted it into lots and streets; had the plat recorded, and sold lots with reference thereto. Permanent monuments were planted, marking the sides of the streets. One street, Cheltenham Avenue, was 60 feet wide and 506 feet north of a 15 foot alley along the south side of the tract. The plat covered only a distance of 1,107 feet south to north. The distance or size of the tract supposed to have been platted was,

[40]Williams v. St. Louis, 120 Mo. 403, 25 S. W. 561.

as above noted, 1,157 feet or 50 feet longer. The owners of lots south of the avenue claimed that one-half of such 50 feet, or 25 feet, should be given and added to their said lots, making them 531 feet. In order to do this it would be necessary to move the whole avenue 25 feet further north and also cut off 25 feet from the south ends of the lots lying north thereof. The plat designated the lots south of the avenue as 506 feet long. The plaintiffs insist that they can move the street 25 feet to the north and thus disregard permanent monuments long planted and maintained. But the court says: "It must be apparent that it would create confusion if individual owners of lots could thus encroach upon the public highways, designated by fixed monuments, duly recorded in the public records."[41]

[41] Williams v. St. Louis, 120 Mo. 408, 25 S. W. 561.

CHAPTER XI

MEANDER CORNERS AND MEANDER LINES

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195. Generally.
196. Meander lines.
197. Reservation or park boundary not a meander line.
198. Meander run at mean high-water mark.
199. When streams are meandered.
200. Shallow streams not generally meandered.
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203. Lakes and ponds within boundaries of single section.
204. Location of island in lake or river.
205. Meander corners not to be exposed to waves and ice.
206. Lands unsurveyable.
207. Mistake or fraud in running meander line.
208. Meander line bounding marsh.
209. Bayou a boundary line.
210. Variation between plat and field-notes.

§ 195. **Generally.**—In this chapter we treat briefly of the instructions of the land department to the government surveyors with reference to the running of meander lines and planting of meander corners. These instructions are followed by the surveyor-general and his deputies at this time. In retracing meander lines and re-establishing lost or obliterated meander corners the local surveyor should have an intimate knowledge of those instructions and also any special instructions which may have been followed in making the original survey in a given case.

By a careful examination of the field-notes in a given survey, the surveyor will have sufficient data in most cases to enable him to do the work properly. The more important rules of the department will be found in this chapter. The refer-

ences, in the main, are to the "Manual of Surveying Instructions for the Survey of the Public Lands, 1902," issued by the government. We have quoted quite freely from the manual. to the end that the professions may have an exact understanding of the rules promulgated.

While we cite a limited number of cases in this chapter yet, in the main, we defer the citations of authorities to a later chapter in the work.[1] The questions discussed in that chapter pertain to principles closely related to meander lines, as accretions, avulsion, and riparian rights in general.

§ 196. **Meander lines.**—A meander line is one run along a stream or body of water for the purpose of establishing the course of the bank of such stream or body of water, and to procure data with which to plat fractional sections and compute the area thereof.[2]

Meander lines are not boundaries and are not run along a national park, a reservation, reserve or other tract of land. They do not limit the extent of land adjacent thereto, and should the stream or body of water, dry up or recede, the riparian owner's property would follow the ever-changing shore line and he would own the land left dry by the recession.

[1]Post ch. XIV.

[2]St. Paul &c. R. R. Co. v. Schurmeir, 7 Wall. (U. S.) 272, 19 L. ed. 74; Mitchell v. Smale, 140 U. S. 406 35 L. ed. 442, 11 Sup. Ct. 819; Horne v. Smith, 159 U. S. 40, 40 L. ed. 68, 15 Sup. Ct. 988; Hardin v. Jordan, 140 U. S. 380, 35 L. ed. 433, 11 Sup. Ct. 808; Freeman v. Bellegarde, 108 Cal. 179, 41 Pac. 289, 49 Am. St. 76; Fuller v. Shedd, 161 Ill. 462, 44 N. E. 286, 33 L. R. A. 146, 52 Am. St. 380; Sizor v. Logansport, 151 Ind. 626, 50 N. E. 377. 44 L. R. A. 814; Grant v. Hemphill, 92 Iowa 218, 59 N. W. 263, 60 N. W. 618; McCrath v. Myers, 126 Mich. 204, 85 N. W. 712; Olson v. Thorndike, 76 Minn. 400, 79 N. W. 399; James v. Howell, 41 Ohio St. 696; Barnhart v. Ehrhart, 33 Ore. 274, 54 Pac. 195; Pratsch v. Aberdeen Packing Co., 7 Wash. 346, 35 Pac. 123; Mendota Club v. Anderson, 101 Wis. 479, 78 N. W. 185; St. Anthony Falls Water Power Co. v. St. Paul Water Comrs., 168 U. S. 349, 42 L. ed. 497, 18 Sup. Ct. 157; Hinckley v. Peay, 22 Utah 21, 60 Pac. 1012; Olson v. Huntamer, 6 S. Dak. 364, 61 N. W. 479.

This is on the assumption that such change is slow and imperceptible. Should the change be sudden and observable from day to day a different rule would apply, as we shall see hereafter.[3]

§ 197. **Reservation or park boundary not a meander line.**—Ever since the enactment of the law pertaining to the survey of the public lands, under the rectangular system, it has been the practice in the survey of lands fronting on large streams or other bodies of water to run meander lines along the shore of such waters. It is not, however, proper to run such lines along parks, reserves, mining claims, or similar reservations. The lines run along the latter are boundary lines, while a meander line is not a boundary line at all. The mere fact that an irregular line must be run does not entitle such line to be called a meander line. To the latter proposition there is one apparent exception, namely; where such irregular boundary line of park or other reserve follows closely a stream or body of water. In that event such line might possibly be termed a meander line, and still it may be doubted whether the rights of a riparian owner would apply in such cases. The rights of a riparian owner, which exist on a meander line, do not apply to other irregular lines described above. The latter are boundary lines and limit the extent of the possession of the owner of the land adjacent thereto.[4]

§ 198. **Meander run at mean high-water mark.**—It is a rule of the department that meanders are to be run at mean high-water mark. This means, according to some of the decisions, that it is to be determined from the river bed, and it is held that, that only is river bed, "which the river occupies long enough to wrest it from vegetation." Hence, high-water mark would lie beyond the part wrested from vegetation.[5] And the courts of Pennsylvania have defined a bank "as the

[3]Post ch. XIV.

[4]Manual (1902) § 153.

[5]Houghton v. Chicago D. & M. Ry. Co., 47 Iowa, 370.

continuous margin where vegetation ceases, and the shore is the sandy space between it and low-water mark."[6]

The decisions are practically unanimous that a meander line is not a boundary line.[7] It does not mark or limit the boundary, and the owner's rights extend to the water's edge. It was held in an Iowa case that, with reference to a navigable river, like the Des Moines, high-water mark is the boundary line.[8] This may be above or below the meander line. When by action of the water the river bed changes, high-water mark also changes. If the change is gradual the riparian owner follows the stream in its changes.[9] The fact is that the location of the meander line does not limit the boundaries of the riparian owner.[10] It is not always possible or feasible, in meandering a body of water, to follow all of the minute windings of the high-water line. The surveyor should follow the general course and will run his meander line substantially along the line of high-water mark. Where it is impossible to carry the line along such high-water mark, the surveyor should enter in his field-notes the distances, at different points, from such mark.[11] The surveyor designates the particular bank of the stream, as the "right bank," or the "left bank." The right bank of the stream is on the right hand side, and the left bank of the stream is on the left hand side as one proceeds down stream.[12]

§ 199. **When streams are meandered.**—All navigable rivers are required to be meandered. All other rivers, "the right angle width of which is three chains and upwards," are also

[6]Mills v. Buchanan, 14 Pa. 59.

[7]St. Paul & C. R. Co. v. Schurmeir, 7 Wall. (U. S.) 286, 19 L. ed. 78.

[8]Sayers v Lyons, 10 Iowa, 249. Wendell v. People, 8 Wend (N. Y.) 183, 22 Am. Dec. 635.

[9]Sayers v. Lyons, 10 Iowa 249.

[10]Manual (1902) § 154.

[11]Manual (1902) § 155.

[12]Manual (1902) § 156.

required to be meandered. These should be meandered on both banks at ordinary high-water mark. The surveyor is required to take the general courses and distances of their "sinuosities" and enter the same in his notes of the survey. Other rivers will not be meandered, except streams less than three chains in width and which "are so deep, swift, and dangerous as to be impassable throughout the agricultural season," may be meandered in such cases where good agricultural land along the shores make it advisable it be separated into fractional lots. And still such meander surveys are subject to be rejected in cases where it turns out to be unnecessary.[13] It seems in all such cases the necessity is subject to approval of the main office.

§ 200. **Shallow streams not generally meandered.**—Shallow streams in which there is no well defined bank or permanent channel should not be meandered. But if the stream is a tide-water stream, whether more or less than the ordinary width of three chains it should be meandered at "ordinary high-water mark, as far as tide-water extends."[14] Evidently this rule is influenced by the common-law rule for determining a navigable stream. There is also another consideration in all such cases. A stream in which the tide ebbs and flows would be devoid of vegetation to high-water mark and, under the old rule, the bed thereof would be the property of the sovereign.

§ 201. **Where meander corners established.**—Meander corners are required to be established at every point where either a standard, township, or section line intersects a meanderable shore, or meanderable stream. These corners are established at the time of running the lines. They are called meander corners. The surveyor will commence at one of these corners in running out the meander line. He will follow the general

[13]Manual (1902) § 157. [14]Manual (1902) § 158.

line of high-water mark and take bearings of the several parts of the line and measure the same. This data will be returned by him. He will note therein the approach to all meander corners. Meander corners should be permanently marked and, where it can be done, bearings taken to trees.[15] All courses are required to be compass courses. They are taken from a meridian and not from a latitudinal line. "Transit angles" showing the deviation from the preceding course are not allowed in meandering.[16] The courses will be given by the nearest quarter degree and will approximate correctness and be sufficient for all practical purposes. Meander lines as well as rectangular will be examined in the field before acceptance.[17] The crossing distance between meander corners on the same line should be noted. And the true bearing and distance between corresponding meander corners will be ascertained by triangulation or by direct measurement. Both shores should be protracted.[18]

§ 202. **Meanders of lakes, ponds, bayous.**—All lakes, navigable bayous and ponds of the area of twenty-five acres or more are to be meandered. The surveyor will commence at the meander corner and proceed as described above for navigable streams. He will take the courses and distances from said corner of the entire margin of the body of water. He shall note the intersection of all meander corners established thereon.[19] All streams flowing into the lake, river, pond or bayou together with the width thereof will be noted. Position, depth and size of springs encountered and whether they are fresh or mineral shall be noted. The elevation of banks of streams or bodies of water, and the height of water-falls shall be taken and noted in the record.[20]

[15]Manual (1902) § 158.
[16]Manual (1902) § 159.
[17]Manual (1902) § 160.
[18]Manual (1902) § 162.
[19]Manual (1902) § 164.
[20]Manual (1902) § 165.

§ 203. **Lakes and ponds within boundaries of single section.**—Before a lake or pond situated wholly within a section can be meandered it must be located with reference to two nearest corners on different sides of the lake or pond. This is done by running two lines from such points to the body of water and noting their courses and lengths. If these lines be coincident with unsurveyed subdivisional lines of the section, that fact must be stated in the notes. At the intersection of said lines with the shore of the lake or pond special meander corners will be established. A special meander corner is one established on a legal subdivisional line, not a standard, township, or section line.[21] After the relative position of these points have been thus fixed the surveyor will meander the body of water, commencing at one point and noting the intersection of the meander line with the other point or points.[22]

§ 204. **Location of island in lake or river.**—Islands in lakes or rivers, which have been meandered, should be surveyed. To do this such island must be located with reference to the survey lines of the land adjacent to the body of water. The position of the island is fixed by triangulation from a specially prepared base line on the shore of the lake and initiated upon the lines already surveyed, on the main land. The meander corner on the main land will be connected by course and distance on a direct line with the corresponding point on the island. A meander corner will be established at this point on the island.[23] This corner is termed an auxiliary meander corner. The meander of the island is initiated at this point.[24]

§ 205. **Meander corners not to be exposed to waves and ice.**—Temporary meander corners may be located at the intersection of the surveyed line with high-water mark, or in case of tide-waters, at the intersection of the line with mean high-tide. Still the surveyor should not place a meander corner in a

[21]Manual (1902) § 166.
[22]Manual (1902) § 167.
[23]Manual (1902) § 169.
[24]Manual (1902) § 170.

position exposed to the beating of the waves and to the action of ice in severe weather. In all such cases a witness corner should be established on the line at a secure point near the point for meander corner. The distance and all particulars with reference to the meander corner and the witness corners must be noted. From this witness corner the meander corner position can thereafter be found.[25]

§ 206. **Lands unsurveyable.**—Meander corners should not be set at intersection of survey lines with deep precipices, canyons, or lands otherwise unsurveyable. Neither should the surveyor meander the line separating the land that can be traversed from that which can not be surveyed. In place of meander corners he will set witness corners, on line near the intersection of section lines with the impassable tract or impracticable marsh. These witness corners will represent inaccessable regular section or quarter-section corners, if within twenty chains. Such quarter-sections so marked shall be platted as surveyed.[26] Meander lines should not be established at the border line between dry and swamp or overflowed land, but should be run at ordinary high-water mark of the actual margin of the stream or body of water.[27] The field-notes of meanders should show the date on which the work was done. Such notes should describe the corners from which the meander line was initiated, and also upon which it closed. Natural features should be set out in the notes.[28]

§ 207. **Mistake or fraud in running meander line.**—Occasionally the courts are required to deal with questions in which fraud or mistake in running a meander line is the deciding factor. As to whether or not an owner has riparian rights may depend on whether or not there was fraud or a mistake in running the meander line. If there was fraud or a mistake in running that line it will be generally held to vitiate the

[25]Manual (1902) § 171.
[26]Manual (1902) §§ 108-151.
[27]Manual (1902) § 168.
[28]Manual (1902) § 172.

meander line, and, in that event, the courts are inclined to regard the so-called meander line as a boundary line and not a meander line. The case of Lally v. Rossman,[29] by the Wisconsin court, as well as several other cases in that State, deserve special mention. At first glance, it may seem that they lay down a different rule with reference to meanders but, on close examination, and reading of the cases, it will be found that such court adheres to the proposition that meander lines are not boundary lines but are run to secure data for tracing the stream or body of water and for computation of the area. The point before the court in that case was as to the boundary line of a lot shown on the government plan where it was evident the government surveyors either did not run the meander lines and fraudulently represented them on the plan, as having been run, or made an error, and that the river never did run where it was represented to run. In fact, the banks of the river were, in many places, a half mile from the places where they were represented to be on the plat. Fig. 37. The dispute was as to lot 5, Sec. 30, township 42, range 3 east. The irregular line A B C represents the river as shown on the government plan. The irregular line A P C represents the river as it actually existed at the time of the government survey and also at the time of the action. The land between the two lines is high and is covered with heavy timber. The line E F G represents the shore of a lake as shown by the government plan, and the line E H I represents the shore of the lake as it was at the time of the survey and also as it now is. Evidently the government surveyor never meandered, either the river or the lake, but guessed at the line of the shores of those waters as they meandered through the section. The fact that they are correctly located at points A and C bears out this theory. It was held that lot 5 would extend south to the 1/8

[29]Lally v. Rossman, 82 Wis. 147, 51 N. W. 1132.

line J-K except it must stop where the river crosses that line at L M N. The plaintiff claimed title to lot 5 and that such lot extended south to the river as it actually runs as at O-L D, thus claiming a considerable tract of land north of the river on what would be the S. W. 1/4 of the S. E. 1/4. The de-

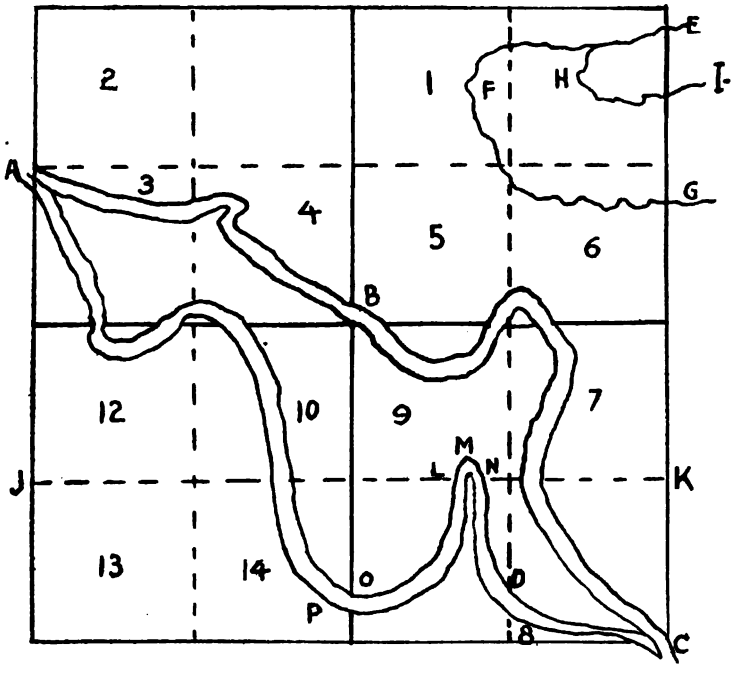


Fig. 37

fendant claimed that the said lot could not extend south of the river "as shown on the government plat."[30] In its opinion the court says: "The Whitney case is decisive of this case, and leaves little to be said. In that case it was held that, where a

[30]Whitney v. Detroit Lumber Co., 78 Wis. 240, 47 N. W. 425.

lake was named as a boundary, and no lake in fact existed, the boundary must be the next eighth line." There has been some criticism of this rule and the courts of Minnesota lay down a different rule apparently.[31] However, the Minnesota court, in case of Security L. & E. Co. v. Burns,[32] had under consideration a similar question. Fig. 67.[33] In that case there was a fraudulent government survey, the plat and survey having been duly approved by the government authorities and filed. The court held that the meander line, so called, was the boundary and that the government could resurvey and resell the land between the lake and the so-called meander line consisting of several hundred acres. So it is, in a large measure, what to do under the particular circumstances before the court. The court can not follow blindly a prescribed rule laid down by another court under different circumstances but must exercise a high degree of common sense and originality in arriving at its decision under the peculiar circumstances of the case.[34]

The case of Whitney v. Detroit Lumber Co.,[35] cited in Lally v. Rossman, is along the same line as the Lally case. In that case, according to government survey and plat, fractional lot 3 of Sec. 9-39-15 east of 4th contained twenty-six acres. Fig. 38. It was situated in the northern part of the N. E. 1/4 of N. W. 1/4 of the section. The plat showed the remainder of the east 1/2 of N. W. 1/4 of the section to be in a lake, the meander of which was the southern boundary of the fractional lot. As a matter of fact there was no lake in the east half of the northwest-quarter of the section. Held; that the

[31]Hanson v. Rice, 88 Minn. 273, 92 N. W. 982.

[32]Security Land & Exploration Co. v. Burns, 87 Minn. 97, 91 N. W. 304, 63 L. R. A. 157, 94 Am. St. 684.

[33]Post ch. XIV.

[34]Post ch. XIV.

[35]Whitney v. Detroit Lumber Co. 78 Wis 240, 47 N. W. 425.

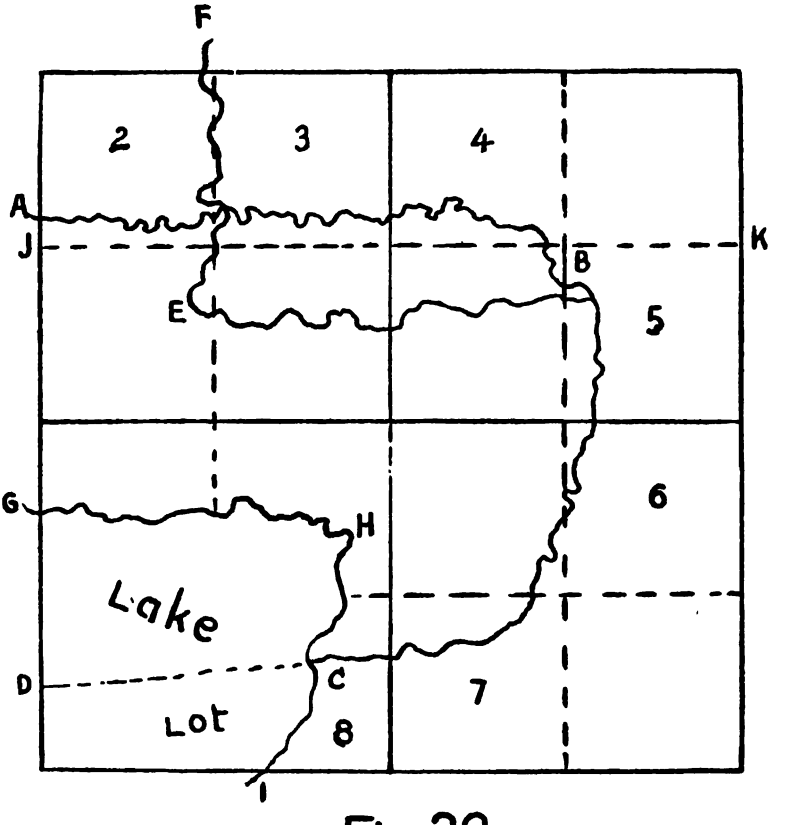


Fig. 38

patent carried title only to the north forty acres of the E. 1/2 of the N. W. 1/4.

While there is no diagram of the section in the reported case, by a careful reading of the statement of facts we have drawn a diagram of a section of land which seems to be warranted by the facts. At any rate it will illustrate the point under discussion. Fig. 38. The irregular line, A B C D, represents the meander line of the lake as shown on the plat.

The irregular line, G H I, represents the actual shore of the lake as it existed at the time of the government survey and as it now is. The line, B E F, represents Pine River as it is. The line J K represents the 1/8 line. It was held that lot 3 could extend only to this 1/8 line. This is a case in which the so-called lake never did cover the land, as represented, beyond the line G H C I. Between the line of the lake and the meander line, as shown on the plat, is high land covered with heavy timber. Prior to 1885, the plaintiff became the owner of lots 3, 4, 5 and 8, and was such owner at the time of the trial. The alleged trespass was committed on the S. E. 1/4 of the N. W. 1/4 by the defendant. The defendant claimed that the said tract belonged to one Long from whom it had a license to cut timber on said lands. It was held that plaintiff had failed to establish title to any part of the S. E. 1/4 of the N. W. 1/4 and that lot 3 was limited to the 1/8 line as its southern boundary. This rule is well established in Wisconsin. The author believes it has good reasons for its existence and should not be condemned without a careful consideration of the whole question. Still it is not in harmony with the general rule.[36]

§ 208. **Meander line bounding marsh.**—In 1834, land lying south of Lake Erie was surveyed by a United States surveyor. The meander line was run along a boggy, wet marsh, lying south of and adjoining the lake. On the plat made by the government from the notes of this survey the land between the meander line and the lake was designated as "flat marsh" or "impassable marsh and water." This meander line was a considerable distance from the lake proper. A part of the land bounded on the north by the meander line was patented by the government to one B, in 1844. B paid only for acreage determined by the meander line. The patent recites the number of acres and that tract is a fractional section "according to the

[36]Post ch. XIV.

official plat of the survey of said lands returned to the general land office by the surveyor-general, etc." In 1881, the land office instructed its surveyor to survey said marsh, lying between the meander line and the lake proper. Such marsh was accordingly surveyed and platted and due return made to the land office. Thereafter the government patented the land so surveyed to C. Held in that case that the original meander line run in 1835, was a boundary line, and B will be limited to that boundary line, and the marsh lying between the original meander line and the lake proper was excluded from his patent; that C would hold such marsh under the later survey and patent issued thereunder.[37] And one receiving a patent will not ordinarily be heard to insist that by reason of an error on the part of a surveyor more land was bought than paid for. This land held not to be continuously submerged.[38] Necessarily the court had to determine that the marsh had never been conveyed by the government until so conveyed to C.

§ 209. **Bayou a boundary line.**—It sometimes happens that the government surveyors ran the meander line along a bayou situated some distance from the main river and did not meander the main shore of the river. This action of the surveyors will naturally raise a question as to whether or not the person buying land along the bayou could properly claim to the main river as a riparian proprietor. In deciding such cases the court and the surveyor should consider all of the surrounding circumstances. If considerable land lies between the bayou and the main river it would be an indication that the government did not intend to give up all of its rights to such land by conveying the shore adjacent to the bayou. This proposition has been before the United States courts for decision.[39] In the case cited the plaintiff was the owner of a lot patented by the

[37]Niles v. Cedar Point Club, 175 U. S. 300, 44 L. ed. 171, 20 Sup. Ct. 124.

[38]Niles v. Cedar Point Club, 175 U. S. 300, 44 L. ed. 171, 20 Sup. Ct. 124.

[39]Horne v. Smith, 159 U. S. 40, 40 L. ed. 68, 15 Sup. Ct. 988.

government. He paid for the number of acres as determined by a certain meander line. This meander line was run along a bayou, which emptied into the main river but, at the point in question, was some distance therefrom. It was held that the plaintiff's land was limited by the bayou. The court says: "In this case United States surveyors obviously surveyed plaintiff's lot only to a bayou and ran the meander line along said bayou, leaving the river unsurveyed. The plaintiff has no right to challenge the correctness of this action, or to claim that the bayou was not the Indian river or a proper water-line on which to bound the lots. The river mentioned was some mile and a quarter beyond the bayou or meander line run. The amount of land patented was about one hundred and seventy acres and was situated in sections 23 and 26. It would not be presumed that the government intended to convey over seven hundred acres and situated in part in sections 22 and 27 also." In this case the length of the section line between sections 23 and 26, as given on the plat, was 30.55 chains, but the actual distance to the river was about 120 chains. The patent to the lot of plaintiff closed by using this language in the description, "containing one hundred seventy and forty-two hundredths acres, according to the official plat." It was held that this did not transfer the land between the bayou and the river. The surrounding circumstances moved the court in that case to hold that it was not the intention of the government to convey all of the land between the bayou and river. The court did not find there was any fraud or mistake in running the meander line but stated that evidently the surveyors, for reasons of their own, did not deem it feasible at the time to survey the land between the bayou and the river. The court cites several authorities, some of which we have already considered.[40] Metes and bounds in a description control dis-

[40]Glenn v. Jeffrey, 75 Iowa 20, 425; Lally v. Rossman, 82 Wis. 147, 51 N. W. 1132. Whitney v. Detroit Lumber Co., 78 Wis. 240, 47 N. W. 39 N. W. 160;

tances.[41] A meander line is not a boundary line generally.[42] A similar question was before the court in an Iowa case in which the facts were that a certain lot was surveyed and platted and located on the north side of a certain water, supposed to be the Missouri river. The government plat and field-notes described the meander line as being at said river, but the water was in fact a bayou some distance from the river, and between it and the river was land which in fact was never surveyed. Held; that the patent for the lot did not convey the land between the bayou and the river.[43] The Iowa court held that the land between the bayou and river had never been surveyed. A similar question was before the Nebraska court with like effect.[44]

§ 210. **Variation between plat and field-notes.**—Where the evidence shows a variation between the plat and field-notes it is important to know to which data the courts give the preference. This question has been before the court in a number of carefully considered cases and it is quite generally held that the plat must control. In an Indiana case it was so held.[45] Thus it would seem that the plat is held to be a higher degree of proof than the notes. Doubtless there are other cases, where from the surrounding circumstances, the court would be constrained to hold differently. It is largely a question of what to do under the particular circumstances. All of the facts should be carefully considered in a given case. Certainly a map and survey made after the deed had been lost, by a surveyor who acted only upon information therein contained, would not be admissible as evidence to prove the boundary.[46]

[41]Morrow v. Whitney, 95 U. S. 551, 24 L. ed. 456.

[42]Hardin v. Jordan, 140 U. S. 371, 35 L. ed. 433, 11 Sup. Ct. 808.

[43]Glenn v. Jeffrey, 75 Iowa 20, 39 N. W. 160.

[44]Lammers v. Nissen, 4 Nebr. 245.

[45]Beaty v. Robertson, 130 Ind. 589, 30 N. E. 706.

[46]Cartright v. Cartright, 70 W. Va. 507, 74 S. E. 655, Ann. Cas. 1914 A, 578.

CHAPTER XII

MARKING LINES AND CORNERS

Sec.
211. Generally.
212. Blazing trees.
213. Lines, how marked.
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§ 211. **Generally.**—Fixed monuments are of paramount importance in all surveys. They control courses and distances as we have seen. They furnish undisputed evidence of the location of lines and corners and must not be disregarded. They are the sources of the surveyor's confidence in the accuracy of his work. Whether the survey be an original one, the relocation of lines and corners long obliterated, or the planting of subdivisional corners of a section the surveyor should establish permanent monuments at all corners with great care. These permanent monuments should consist of steel, copper, or stone firmly set in the soil. Take the time and do not neglect this important matter. If timber be near at hand, at least two bearings should be taken to each corner. These should be properly marked and noted in the minutes.

Permanent records should be made. Otherwise there is no guarantee of satisfactory work in the future.

§ 212. **Blazing trees.**—When the author gave a title to this chapter it was not so much with the thought of urging upon surveyors the planting of permanent monuments at all corners, as briefly touching upon the instructions of the commissioner of the general land office to the surveyor-general and his deputies, on the manner of marking lines and corners. Retracing surveyors should become familiar with these instructions. The Act of 1796, which is still in force, required the marking of lines as well as corners. In a wooded country, this is of great importance and will be helpful to local surveyors and owners in locating the true line. Blazes are permitted only along permanent lines; never along random or temporary lines. We will briefly review the instructions sent out by the commissioner of the land office relative to these matters in this chapter.

§ 213. **Lines, how marked.**—Lines on which are to be established legal corners, boundaries will be marked by blazing trees on or near the line. All trees intersected by the line will have two chops or notches cut on the sides facing the line. No other marks permitted. These are called "sight-trees," or "line-trees." A number of other trees standing within fifty links of the line, on either side of it, should also be blazed on two sides. These blazes are made diagonally or quartering toward the line and thus make the line conspicuous and easily traceable. These blazes will be made opposite each other and should correspond with the direction of the line where the trees stand near it, and approach near to each other toward the line, the farther the line passes from the blazed tree. Thus, by observing the position of the two chops the surveyor can locate the general direction and position of the line. In early surveys, an opposite practice prevailed. This, the local sur-

veyor should bear in mind.[1] The line should be so well marked as to be easily followed. The blazes should be cut deep enough to leave reasonably well formed scars. The surveyor should cut through the bark and into the wood. Trees two inches or more in diameter along the line should be so blazed. Full notes should be made of all blazed trees, giving diameter, kind of tree, direction from line, and approximate distance from line.[2] Sufficient undergrowth to enable the surveyor to correctly operate his instruments along the line will be cut. In the event the line crosses deep wooded valleys and is run by sighting over tops of trees, the usual blazing of trees in the low ground, where accessible, will be performed.[3]

§ 214. **Blazing random lines unlawful.**—"The practice of blazing random lines," say the instructions, "to a point some distance away from an objective corner, and leaving through timber a marked line which is not the true boundary, is unlawful, and no such surveys are acceptable. The decisions of some state courts make the marked trees valid evidence of the place of the legal boundary, even if such line is crooked, and has the quarter-section corner far off the blazed line."[4] It will be readily seen to allow randoms to be blazed would be a source of trouble and confusion. Hence, on random line trees will not be blazed unless absolutely necessary, and then guardedly so as to prevent confusion in lines. And still bushes may be cut away and limbs lopped off and stakes set on the trial line every 10 chains to enable the surveyor to return and correct and off set to the true line. After the true line has been established the surveyor will remove all stakes on the random line.[5]

[1]Manual (1902) 42.
[2]Manual (1902) 43.
[3]Manual (1902) 44.
[4]Manual (1902) 45.
[5]Manual (1902) 46.

§ 215. **Impassable objects on line—Witness points.**— Where the survey of a line is obstructed by an impassable object, such as a pond, swamp, or marsh, (not meandered), the line will be prolonged across such obstruction by right-angling or some other trigonometrical operation to locate the line across the obstruction. In the event the line is recovered some distance beyond the margin of the obstruction, it will be surveyed back to such margin and trees blazed thereon. A witness-point will be established to mark such margin, except when such point is less than 20 chains from a legal corner, and in that event a witness-corner will be established at the intersection. All of the particulars will be carefully entered in the field-notes.[6] Fig. 39. "In case where all the points of inter-

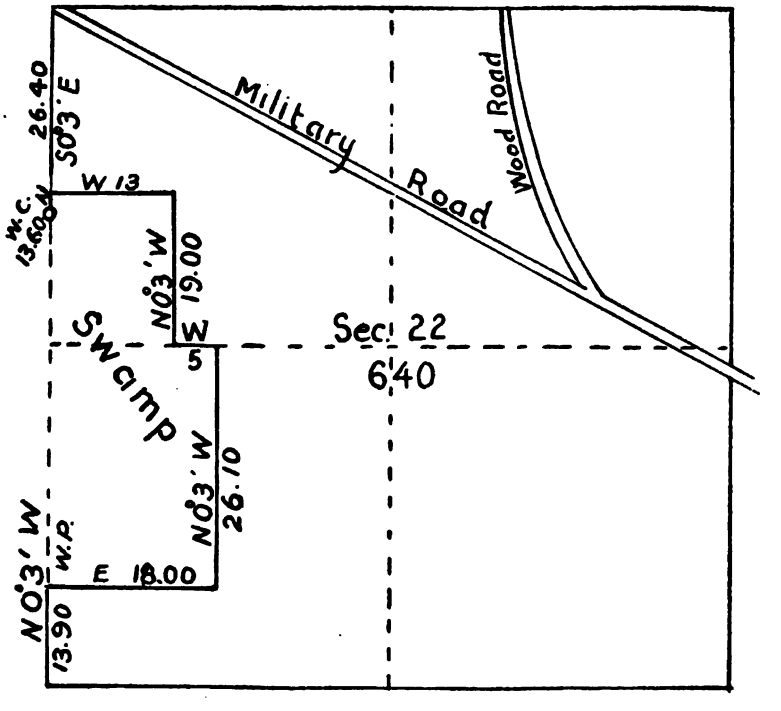


Fig. 39

[6]Manual (1902) 49-50.

section with the obstacle to measurement," continue the instructions, "fall more than 20 chains from the proper place

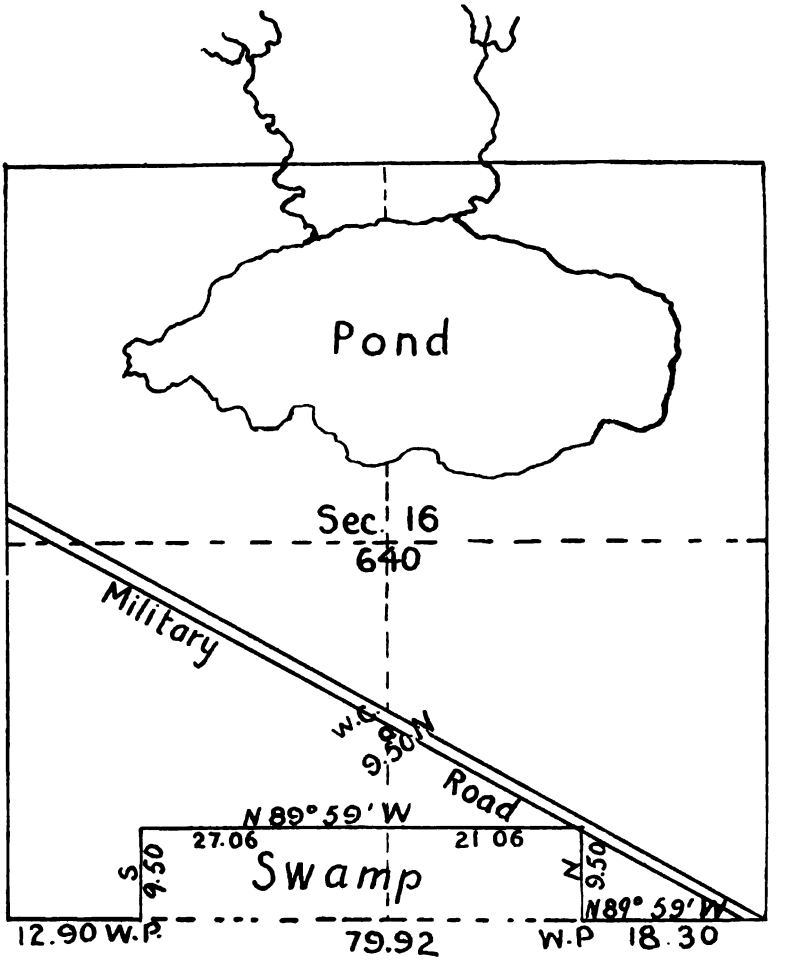


Fig. 40

for a legal corner in the obstruction, and a witness-corner can be placed on the off set line within 20 chains of the inaccessible corner point, such witness-corner will be established.[7] Fig. 40.

§ 216. **Establishing and marking corners.**—The government surveyor is required to carefully mark all corners, in a manner to assure permanency, to the end that future surveys may be made with certainty. If corners are not so marked the survey will have been largely in vain. What is here said with regard to the duties of government surveyors in marking corners and lines may well be applied to local surveyors. It is not enough to do the work of running lines and fixing corners. There should be permanent monuments set and full notes taken with reference thereto.

"All marking of letters and figures should be done neatly, distinctly, and durably," say the instructions, "using the tools best adapted to the purpose, and keeping them in good order. These tools are the chissel and hammer for marking stones, and the scribing tool or gouge for surfaces of wood." The greatest permanency requires stone or iron corner monuments. The perishable nature of wood prohibits its use at this time unless absolutely necessary. The deputy should be provided with good tools so that the work may be accurately and quickly done. Arabic figures should be used for all numbers.[8]

§ 217. **Monuments consist of corners and accessories.**—The corner should be firmly established. It should consist of an iron rod, pipe, or better still a copper rod, a marked stone, a cross cut on a ledge. Where these can not be had a post of durable timber may be used. If it be necessary to set up a stone monument on a ledge the instructions require that it be supported in a well built stone mound, marks plainly shown. A witness-mound will be built separately.[9]

[7]Manual (1902) 51.
[8]Manual (1902) 55; Manual (1919) 255.
[9]Manual (1902) 54.

Under the instructions the accessories in the order of their desirability are: bearing objects, such as cliffs, rocks, or boulders marked with a cross, the letters "B. O." and section number; memorials, such as glass, stone-ware, marked stones, cast iron, charcoal, or charred stakes buried twelve or twenty-four inches under the surface at the corners; pits of proper size and arrangement; mounds of stone at proper position from corner; bearing trees blazed and marked as required; stake in pit, with letters and figures; mound of earth, which is the least durable, may be considered.[10] It is necessary that these monuments be properly lettered where that may be done. Buried charcoal or stone pottery is very durable and effective. The fact of such burial together with the depth should always be noted in the minutes.

§ 218. **Pits and mounds.**—"When pits and mounds of earth are made accessories to corners," say the instructions, "the pits will always have a rectangular plan; while the mounds will have a conical form, with circular base; and in all cases both pits and mounds will have dimensions at least as great as those specified in the descriptions." No departure by the surveyor will be permitted.[11] It will be seen that neither mounds nor pits are of any permanency as markers unless the surface of the ground remains practically undisturbed. In the latter case they mark the place where the corner may be found with reasonable certainty. Corners in later surveys are marked much more permanently than formerly. Marked steel rods at all section, township, range and quarter-section corners make a very desirable marker.

§ 219. **Standard township corners.**—All corners should be so marked that the surveyor may identify the particular corner and know that certain sections are identified thereby. Detailed descriptions of the manner of marking standard town-

[10]Manual (1902) 55. [11]Manual (1902) 57.

ship corners under any and all circumstances are given in the instructions.[12] It has been the practice in a prairie country,

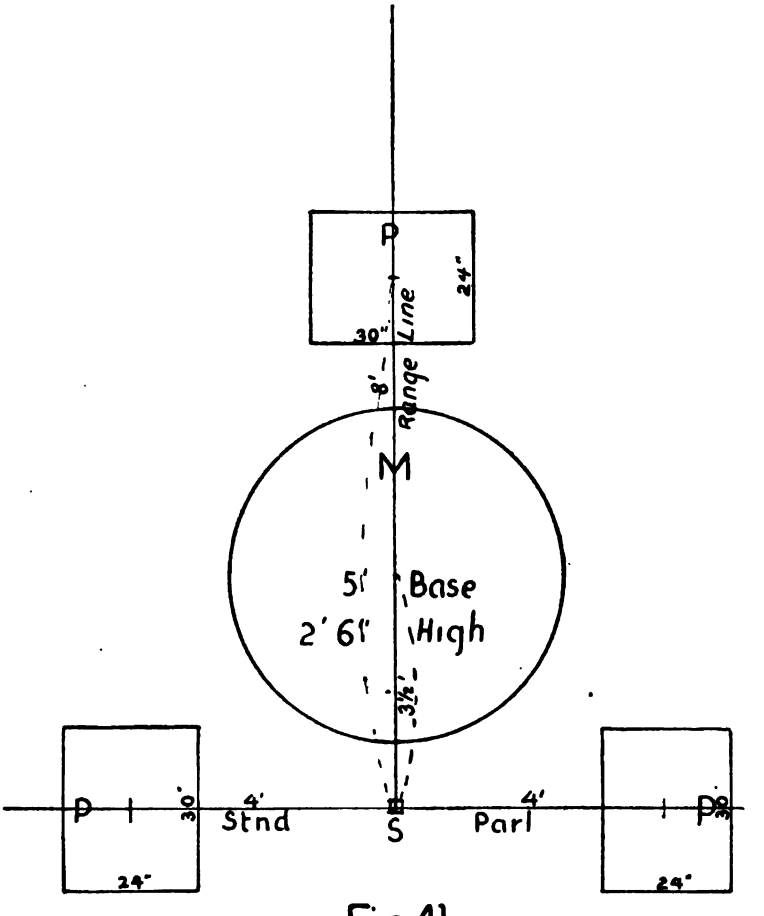


Fig 41

where no trees are found in the vicinity of the corner, for the surveyor to mark such corners with stones, mounds of earth

[12]Manual (1902) 64; Manual (1919) 255.

or pits where practical. The size and location of the pits and mounds and the size of the stone are fully set out in the field-notes. Where a pit and mound of earth are impractical the corner may be marked by a stone, with mound of stones for support, or, in lieu of a stone, a post may be planted at the corner. Where trees can be found they should be marked to indicate the position of the corner. Figs. 41 and 42.

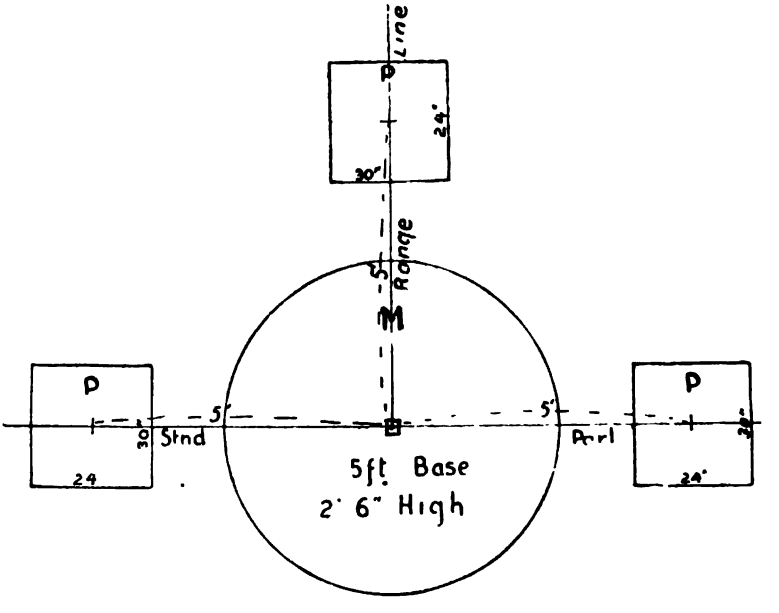


Fig 42

Mounds of earth with deposit of charcoal, glass, crockery, or similar material may be used to witness the corner. Should a tree be found at the corner it should be blazed and marked and its position may be indicated by pits and mounds of earth or by bearing trees. The particular corner should be so marked as to indicate it is a standard corner, thus "S C."

§ 220. **Closing township corners.**—Closing township corners on base lines or standard parallels are required to be connected, by course and distance, with the nearest standard corner thereon. Likewise closing corners on all other lines, are required to be connected, in a similar manner, with the nearest township, section, or quarter-section corner, or mile, or half-mile monument, as conditions may require in the particular case.[18] These corners are marked in a similar manner, except the inscriptions are placed so as to indicate the corner to be a closing corner, thus, "C C."[14] "When two closing lines, at right angles to each other," it is said, "intersect an irregular boundary at points less than 8 feet apart and stone or post corners are established," the ordinary pits will be omitted, and the pits on the closing lines will have their di-

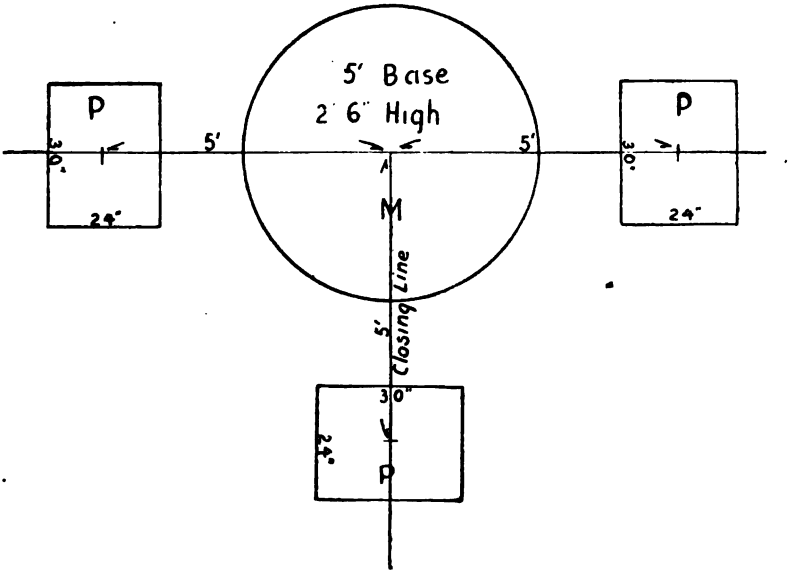


Fig. 43

[18]Manual (1902) 66.

[14]Manual (1902) 65.

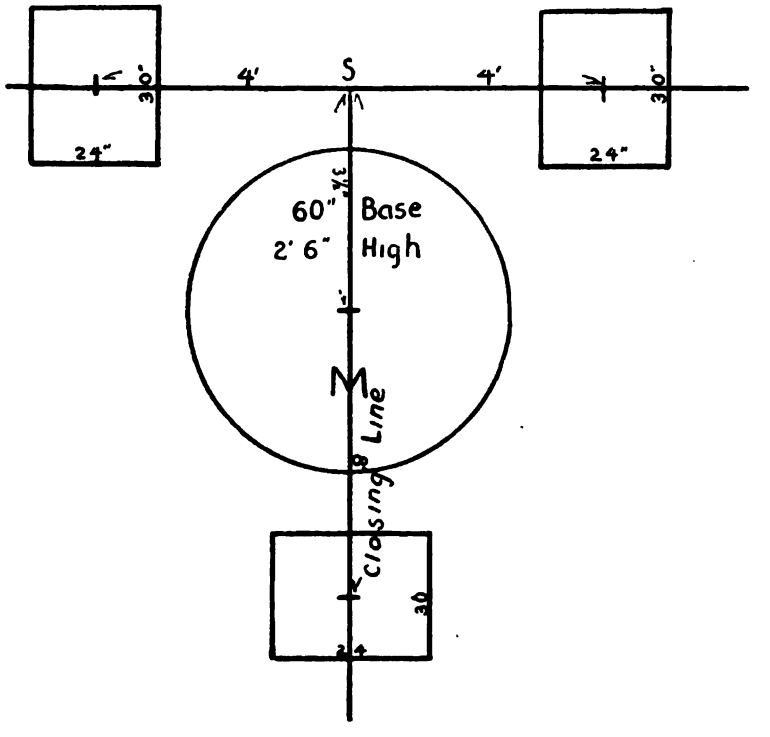


Fig 44

mensions increased to 36x36x12 inches.[15] Figs. 43 and 44. The precautions herein outlined were not always observed in many of the early surveys; in fact they were not made a part of the instructions in the early day. This omission became the source of much confusion in the relocation of corners on standard parallels and base lines.

§ 221. **Corners common to four townships.**—These corners are permanently marked like standard township corners, except the lettering on the post indicates that the corner is one

[15]Manual (1902) 69.

common to four townships, and the townships are designated by the proper letters on the side of the post facing a given township. Such post should be set diagonally so that each

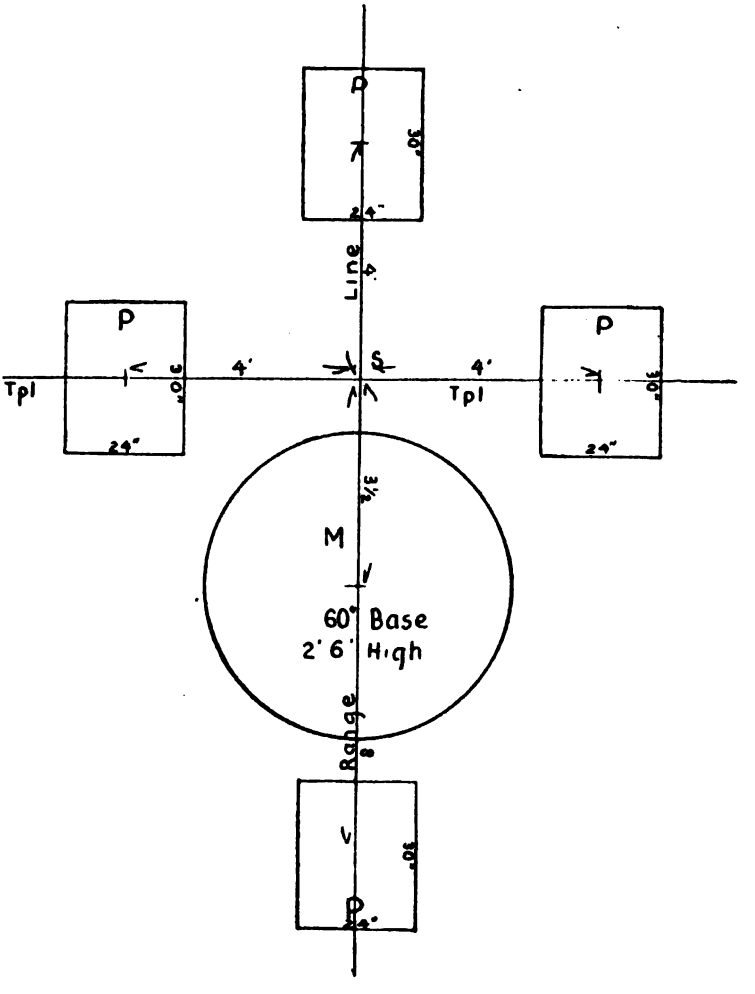


Fig 45

side faces a particular township.[16] Thus the given township can at all times be identified by an examination of the markings facing a township. Figs. 45 and 46.

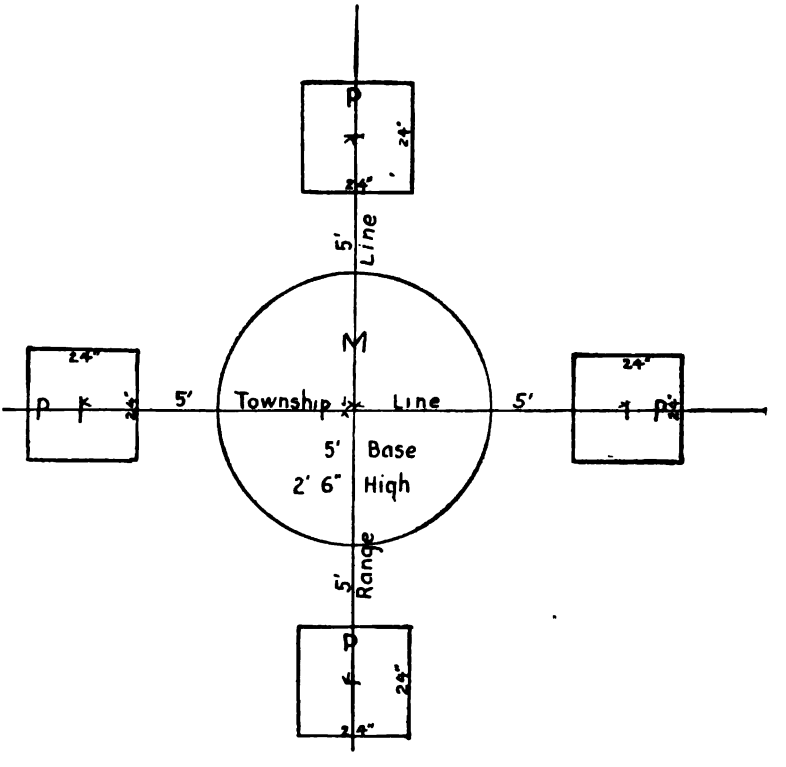


Fig 46

§ 222. **Corner common to two townships.—The pits,** mounds, stones, posts, etc., which indicate the position of these corners are placed similarly to other corners on township lines, except that they are so arranged and marked as to indicate the two townships. By referring to the letters and the positions

[16]Manual (1902) 71.

of the pits and mounds of earth or bearing trees, the particular township intended to be designated can be ascertained and identified.[17] Figs. 47 and 48.

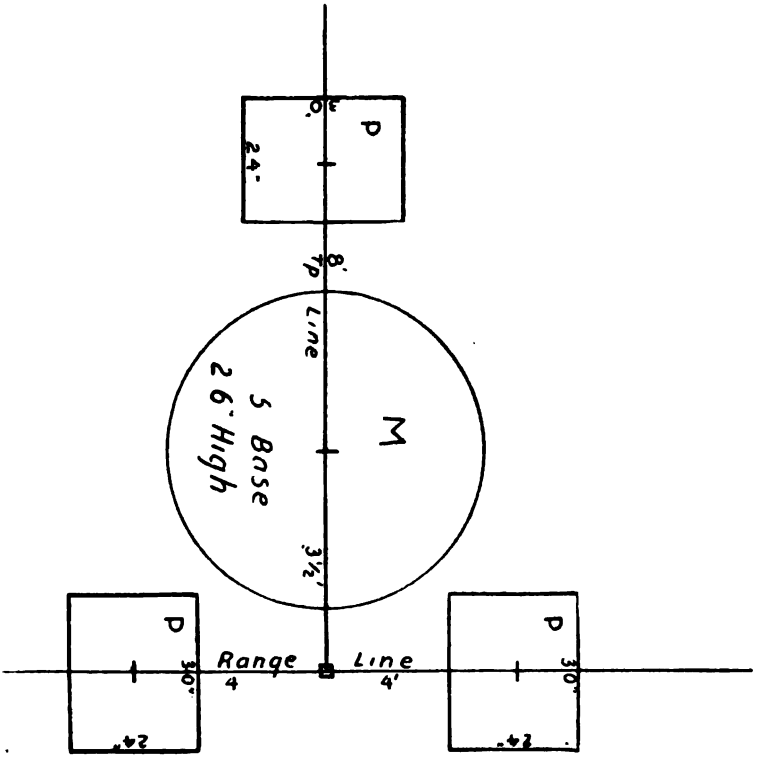


Fig 47

§ 223. **Standard section corners.**—Standard section corners are marked similarly but so as to indicate the particular section. For instance, if it be desired to mark the corner to sections 31 and 32 of a designated township it could be done in

[17]Manual (1902) 72.

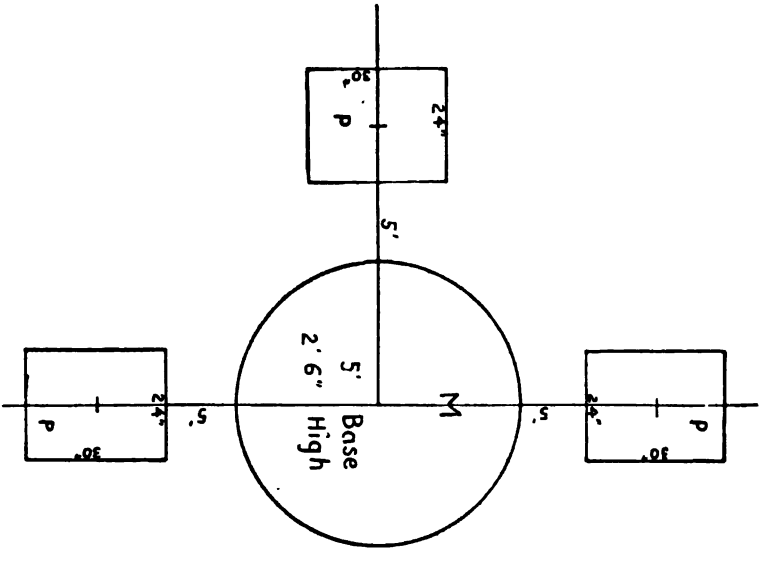


Fig. 48

one of eight ways but, whichever method is used, should indicate the position of the corner and the sections of which the corner was a corner in common. If marked with stone, pits and mound of earth, the markings and positions would be as follows: "Set a —— stone, —— x —— x —— ins., —— ins. in the ground, for standard corner of Sections 31 and 32, marked S C on N.; with 5 grooves on E. and one groove on W. face; dig pits 24x18x12 ins., cross-wise on each line E. and W., 3 feet and N. of stone, 7 ft. dist.; and raise a mound of earth 4 ft. base, 2 ft. high N. of cor." It will be noted that this marks the position of the standard section corner.[18] As will be noted the above is the markings only where stone and pit and mound are used.

[18]Manual (1902) 74.

§ 224. **Closing section corners.**—Closing section corners may be marked with post, stones, pits, mounds of earth, trees, etc., the same as for other corners but the markings on posts and position of pits and mounds indicate the location of the particular corner. If marked by stone, with pits and mounds of earth, the notes for corners to sections 1 and 2 would read something like this; "Set a —— stone, —— x —— x —— ins. —— ins. in the ground, for closing corner for sections 1 and 2, marked C C on S.; with one groove on E. and 5 grooves on W.; dig pits, 24 x 18 x 12 ins., cross-wise on each line, E. and W., 3 ft., and S. of stone, 7 ft. dist.; and raise a mound of earth 4 ft. base, 2 ft. high, S. of cor." It will be seen that this marks the position of the closing corner. If trees are marked there would be two bearing or witness-trees.[19]

§ 225. **Corners common to four sections.**—These corners may be marked with stone, wooden posts, pits and mounds of earth, and in the same way, as other corners are marked. The marking must indicate the position of the given corner. It will be noted that the notches or grooves cut on the post or stone fix the position of the required corner. When it is known that the corner is one common to four sections the notches cut on the stone or post will show the location. For instance, the markings with stone, pits and mounds of earth for corner to sections 14, 15, 22, and 23, would be, as noted in the field-notes; "Set a—— stone, —— x —— x —— ins., —— ins., in the ground, for cor. of sections 14, 15, 22 and 23, marked with 3 notches on S. and 2 notches on E. edge; dig pits, 18 x 18 x 12 ins., in each section 5 and 1/2 ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor." If the corner is marked by bearing-trees one tree should be selected in each of the four sections of which the corner is a common one.[20]

[19]Manual (1902) 75. [20]Manual (1902) 76.

§ 226. **Section corners common to two sections only.**— These corners may be marked similarly to other corners but the position of the corner must be shown by the markings on the stone or post. For instance, if the corner be marked by post and bearing-trees, and it is desired to mark the corner to sections 24 and 25, township 3 N., range 5 W., the notes to a proper marking would read: "Set a —— post, 3 ft. long, 4 ins. sq. 24 ins. in the ground for cor. of sections 24 and 25, marked T. 3 N. S. 25 on S. W., and R. 5 W. S. 24 on N. W. face, with 4 notches on N., and 2 notches on S. edge; from which A ——, —— ins. diam., bears S. —— Degs. W., —— lks. dist. marked T. 3 N. R. 5 W. S. 25 B. T. A. ——, —— ins. diam., bears N. —— Degs., W., ——, lks., dist., marked T. 3 N. R, 5 W. S. 24 B. T." It will be noted the given corner is identified with certainty not only by the notches but by the marked trees.[21]

§ 227. **Section corners referring to one section only.**— Such corners are marked with similar materials but marking different and positions of pit and mound of earth or trees are different. If it be desired to mark a corner to section 10, twp. 3 N., R. 5 W. by post with pit and mound of earth, the field-notes would read: "Set a —— post, 3 ft. long, 4 ins. sq., with marked stone (charred stake or quart of charcoal), 24 ins. in the ground, for N. W. cor. of sec. 10; marked T. 3 N. S. 9 on N. E. R. 5 W. S. 10 on S. E. S. 9 on S. W., and S. 9 on N. W. face with 5 notches on S. and 3 notches on E. edge; dig a pit 36 x 36 x 12 ins. in the sec. 8 ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, S. E. of cor."[22]

§ 228. **Quarter-section corners.**—Similar materials may be used for marking quarter-section corners but the marks and position of letters, pits, mounds and bearing trees differ. If it be desired to mark a quarter-corner by a stone, pits and mound of earth, the field-notes would read: "Set a —— stone, —— x —— x —— ins., —— ins. in ground, for 1/4

[21]Manual (1902) 77. [22]Manual (1902) 78.

sec. cor. marked 1/4 on N. face; dig pits, 18 x 18 x 12 ins., E. and W. of stone, 3 ft. dist.; and raise a mound of earth, 3 and 1/2 ft. base, 1 and 1/2 ft. high, W. of cor."[23]

On meridional lines, the pits will be dug N. and S. and the mound will be placed on the west side of the corner; on latitudinal lines the pits will be located E. and W. and mound will be built on the north side of the corner.[24] On meridional lines, the marks will be placed on the west side and on latitudinal lines, on the north side of the stone, post, or other monument. On meridional lines, the stakes will be driven in the S. pit, and on latitudinal lines, in the E. pit.[25]

As to standard quarter-section corners the instructions provide: "All standard quarter-section corners on base lines or standard parallel, will have the letters "S C" (for standard corner), precede the marking 1/4 or 1/4 S., as the case may be; such corner will be established in all other respects like other quarter-section corners." And it is provided that when bearing-trees are noted for standard quarter-section corners, each tree will be marked, S C 1/4 S B T.[26]

§ 229. **Meander corners.**—Such corners may be marked with similar materials. However, the markings on the post must indicate that it marks a meander corner, thus "M C." If it be desired to mark a meander corner of fractional sections 26 and 35, with stone, and pits and mound of earth, the field-notes would read: "Set a —— stone, —— x —— x —— ins., —— ins. in the ground for meander cor. of frac. secs. 26 and 35, marked "M. C." on E. face, with one groove on S. face; dig a pit 36 x 36 x 12 ins. 8 ft. W. of stone; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor."[27]

"On all meander corners," it is said by the instructions, "the letters 'M. C.' (for meander corner) will be cut into the side

[23]Manual (1902) 79.
[24]Manual (1902) 80.
[25]Manual (1902) 81-2.
[26]Manual (1902) 83.
[27]Manual (1902) 85.

facing the stream or lake to be meandered. On post or tree meander corners, within township exteriors, additional marks will be placed, as follows: the township number will be marked on the side opposite 'M. C.'; the proper range and section number will be placed on the right-hand side (when looking along line toward the stream or lake), and the appropriate section number on the opposite side." And it is provided that all meander corners on base lines or standard parallels will be further marked "S. C." on north side of face. It is also provided by the instructions that: "On principal or guide meridians, and on meridional township lines, the letters 'M C' will be placed as above directed; the township number will be marked on the opposite side; while the proper range and section numbers will be marked on the sides facing the east and west cardinal points."

The township and section numbers, on base lines or standard parallels and on latitudinal township lines, will be marked on the sides facing the north and south cardinal points; the range numbers will be placed on the side opposite the marking 'M. C.' The numbers indicating townships, ranges and sections will be preceded by the initial letters T, R and S respectively in all markings referred to in this paragraph.[28] It will be seen that we have dealt very briefly with the markings of corners. No attempt has been made to cover the various markings, but enough has been said to indicate the manner pursued by the government. For additional information the reader is referred to the Manual of Surveying Instructions.[29]

[28]Manual (1902) 87.

[29]Manual (1902) 64-92 inc.

CHAPTER XIII

IDENTIFICATION OF TRACT

Sec.
230. Generally.
231. Declarations of surveyor since deceased.
232. Declaration in favor and against interest.
233. New Jersey strict as to declarations.
234. Declarations, acts and omissions after parting with title.
235. The declarations of an agent.
236. Admitted monuments—Others lost.
237. Original notes of survey.
238. Omissions in calls may be supplied under certain conditions.
239. Conflict of calls—Most material calls control.
240. Mistakes in calls of a patent may be corrected.
241. Plan not yet made or recorded.

§ 230. **Generally.**—It frequently happens that, upon reading over the description in a deed, and applying it to the land, there is some apparent ambiguity, and the surveyor may find difficulty in locating the exact tract without a resort to evidence outside of the instrument of conveyance. To the end that the surveyor may know the law, and the bar have citations at hand, we are here laying down some of the more important statements of the law and the citations of decisions of courts sustaining the several propositions. It is the rule that the identical monument of boundary referred to in a deed is always the subject of parol testimony.[1] If this be so it is important to know what kind of evidence is competent. The subject is a broad one, and, to treat it exhaustively, would require more

[1]Ferris v. Coover, 10 Cal. 589.

space than can be given to this branch of the work. We will, however, consider the more important principles of evidence applicable to the title.

Naturally the subject of declarations is closely associated with this title. It is an important branch of evidence and we propose to treat it especially with reference to the survey of lands and the identification of the tract. Gillette, in his admirable work on Indirect and Collateral Evidence, says: "The authorities on this subject (Declarations of Deceased Persons as to Boundaries) are in a state of great confusion. This is due in part to the fact that many courts have confused reputation and declarations, as evidence of boundaries. And * * * well considered cases reject evidence of reputation to establish boundaries, except where they are public or *quasi* public." And further on in the same section, we find: "There is a line of cases in this country that authorize the introduction of the declarations of deceased persons as to boundaries, while in possession of land owned by them, in the act of pointing out their boundaries, and at a time when they had no reason to deceive or misrepresent. There are also cases which hold that such declarations are competent although made while off the land and not accompanying any act of pointing out the boundaries. The first line of cases has the preponderant voice * * *."[2]

In the following pages we consider and quote from various authorities, in the different parts of the United States, at length, on the matter of declarations of persons, since deceased, pertaining to the boundaries of lands. The reader will note the two lines of cases referred to by Judge Gillette.

In order that these declarations be admissible it must appear that they were made prior to a time when any controversy existed.[3] With reference to this matter Mr. Justice Lawrence

[2]Gillette Indirect and Collateral Evidence, 171.

[3]Monkton v. Attorney General, 2 Russ. & M. 147.

said: "Declarations *post litem motam*—not merely after the commencement of the lawsuit, but after the dispute has arisen, for that is the primary meaning of the word *lis*- ought not to be received as evidence." If made after a controversy had arisen it is more than likely that the person making it would be influenced in the making of the declaration in the interest of one or the other of the parties. Hence, it could not be relied on.[4]

§ 231. **Declarations of surveyor since deceased.**—It has been held that the deposition of a surveyor, who ran the boundary line of a grant, taken in an action, is admissible in another action between different parties, as hearsay evidence, upon the question of the location of such lines, after his death.[5] And we find the South Carolina court holding that the declarations of a surveyor, deceased, at the time of trial, who originally located the land, are admissible, on a question of the location of that land.[6] So, too, the acts and declarations of a surveyor, while surveying an adjacent lot, upon the question of boundary are admissible; the surveyor being now deceased, and having no interest to misrepresent at the time of such survey. What the surveyor did and said at the time he found the corner of the land in question may be regarded as something more decisive than the expression of a mere naked opinion.[7] And we are told that hearsay evidence, if pertinent and material, should be received to establish ancient boundaries.[8] The general rule in this country is that the declarations of a surveyor or his assistants, since deceased, are receivable in evidence as to the location of a corner or boundary line, either public or private, when made on the ground, in the act of

[4]Monkton v. Attorney General, 2 Russ. M. 147.

[5]Morton v. Folger, 15 Cal. 275.

[6]Blythe v. Sutherland, 3 McCord (S. Car.) 258.

[7]Adams v. Blodgett, 47 N. H. 219, 90 Am. Dec. 569; Prescott v. Hawkins, 22 N. H. 191; Van Deusen v. Turner, 12 Pick. (Mass.) 532.

[8]Taylor v. Fomby, 116 Ala. 621, 22 So. 910, 67 Am. St. 149.

establishing the corner or running the line, pointing out such corner or line, where there is nothing to show that the person making the declaration had any interest to state other than the truth. And it has been held that the field-notes of a surveyor, since deceased, are admissible as declarations made contemporaneously with the work done on the ground, if such notes are authenticated in some way, other than by the mere subsequent declarations of the surveyor himself.[9]

And it has been asserted by the Pennsylvania court that: "From an early day in this state, in litigation respecting boundaries, it has been competent to prove, after the death of a surveyor who had examined a line, what he said respecting it at the time and on the ground. The more careful and thorough his examination the greater weight his testimony would have if living, or what he said at the time, if dead. But if he examined the line, he is a competent witness, and after his death his statements respecting the line, made at the time of the examination, may be proved."[10]

The text above has likewise been sustained in Fry v. Stowers,[11] where the court holds: "The law is well settled in this state that evidence is admissible to prove the declarations of a deceased person as to the identity of a particular corner, tree, or boundary, provided such person has peculiar means of

[9]Hunnicutt v. Peyton, 102 U. S. 333, 26 L. ed. 113; Clement v. Packer, 125 U. S. 309, 31 L. ed. 721, 8 Sup. Ct. 907; Koons v. Bryson, 69 Fed. 297; Morton v. Folger, 15 Cal. 275; Hamilton v. Smith, 74 Conn. 374, 50 Atl. 884; Adams v. Blodgett, 47 N. H. 219, 90 Am. Dec. 569; Westfelt v. Adams, 131 N. Car. 379, 42 S. E. 823; Caufman v. Cedar Springs Presbyterian Cong., 6 Bin. (Pa.) 59; Collins v. Clough, 222 Pa. St. 472, 71 Atl. 1077, 15 Ann. Cas. 871; Kennedy v. Lubold, 88 Pa. 246; Coate v. Speer, 3 McCord (S. Car.) 227, 15 Am. Dec. 627; Montgomery v. Lipscomb, 105 Tenn. 144, 58 S. W. 306; Cottingham v. Seward (Tex. Civ. App.), 25 S. W. 797; Simpson v. DeRamerez, 50 Tex. Civ. App. 25. 110 S. W. 149; Turner Falls Lumber Co. v. Burns, 71 Vt. 354, 45 Atl. 896.

[10]Kramer v. Goodlander, 98 Pa. 366.

[11]Fry v. Stowers, 92 Va. 13, 22 S. E. 500.

knowing the fact in question, as, for instance, the surveyor or chain carrier who were engaged upon the original survey, or the owner of the tract, or of an adjoining tract calling for the same boundaries."

This principle is well grounded in the law of the several states, and we find the court in Collins v. Clough, supra, at page 484, saying: "Declarations of deceased owners and surveyors are admissible only as they speak to such independent facts, not as establishing reputation, but as tending to establish certain relevant facts which because of the lapse of time are not susceptible of more direct proof. It is true historically that when this exception to the general rule was first allowed, no other limitations were imposed except that it must be first made to appear that the declarant had peculiar means of knowing the facts to which he spoke, and had no interest to misrepresent. But it is equally true that when the exceptions came to be applied in Pennsylvania, it was quite another limitation, which naturally narrowed its field of operation, viz., that the declarant must have been on the land at the time the declaration was made, and engaged at the time in pointing out the boundaries of the land."[12] This is a plain statement of the rule as applied in the greater number of jurisdictions in this country as we believe. Some of the courts lay special stress on the fact that the party making the declarations, was at the time, on the land and actually pointing out the line or corner. This of course greatly strengthens the evidence and really makes it a part of the *res gestae*. However, many courts of splendid reputations have received such declarations by surveyors made at a time when the surveyor was not on the ground but after he had established a corner and planted a monument and to which he referred at the time.[13] In the latter case the declarations received were made by a person

[12]Collins v. Clough, 222 Pa. St. 472, 71 Atl. 1077, 15 Ann. Cas. 871. [13]Westfelt v. Adams, 131 N. Car. 379, 42 S. E. 823.

not on the ground and the boundary was not pointed out to the witness by the party making. But such declarations are not admissible where they will tend to contradict the official survey.[14] Neither are the declarations of a surveyor, since deceased, of his opinion as to the location of the line and correctness of a former survey, admissible.[15] So also the declarations of a deceased surveyor as to the character of certain marks on a tree amounting to a mere opinion as to such marks, are not admissible.[16] It is quite generally held that the declarations must have been made when the surveyor and the witness who testifies thereto were on the land and the former was pointing out or marking the boundaries or corners or performing some other duty relative thereto.[17]

§ 232. **Declaration in favor and against interest.**—It will be noted that some of the courts hold that under no circumstances will declarations of a former owner of land, now deceased, be received in evidence unless against interest. Other courts hold such declarations admissible, if made before any litigation or controversy arose, while in possession as owner of the land, and in a position to have had knowledge of the facts to which the declarations relate and there being no apparent reason for falsifying. The court should receive such declarations with great caution, where they are not against interest, in order to prevent an owner of land making such declarations in his own interest, to be thereafter used by his heirs or grantees. Still it has been held that the declarations of a former owner of land, now deceased, made while in possession, are competent upon the question of its boundaries in

[14]Reusens v. Lawson, 91 Va. 226, 21 S. E. 347.

[15]Russell v. Hunnicutt, 70 Tex. 657, 8 S. W. 500.

[16]Wallace v. Goodall, 18 N. H. 439.

[17]Hunnicutt v. Peyton, 102 U. S. 333, 26 L ed. 113; Martin v. Hughes, 90 Fed. 632.

favor of as well as against one claiming under him.[18] And it has been held in some states that private boundaries may be proven by common repute, as well as direct evidence, but in either case the proof must show the boundary with reasonable certainty.[19]

§ 233. **New Jersey strict as to declarations.**—In some states the rule with reference to declarations is exceedingly rigid. It is held in some jurisdictions that such declarations should only be received to establish recognized public boundaries, as distinguished from private.[20] In the latter case the court says: "But the decided weight of authority in this country, and upon the solid ground of reason and principle, is against the admissibility of evidence of such character."[21] While we are satisfied the New Jersey court in this case is in error as to weight of authority, in this country, yet the English rule is to that effect.[22] There is also some respectable authority in this country to sustain the New Jersey court. However, it will be found that many of the cases holding with that court so hold for the reason that the facts, in the particular action, are not within the regular rule as held by a majority of the courts in this country. Clearly the reason of the rule and the weight of authority in this country is the other way.[23]

§ 234. **Declarations, acts and omissions after parting with title.**—As a general rule the acts, declarations and omissions of a person, after parting with title, can not be given in evidence against his grantee, even though he still owns land affected by such acts, etc., and such acts were against his interest at

[18]Nutter v. Tucker, 67 N. H. 185, 30 Atl. 352, 68 Am. St. 647; South Hampton v. Fowler, 54 N. H. 197.

[19]Nixon v. Porter, 34 Miss. 697, 69 Am. Dec. 408.

[20]Curtis v. Aaronson, 49 N. J. L. 68, 7 Atl. 886, 60 Am. Rep. 584.

[21]Curtis v. Aaronson, 49 N. J. L. 68, 7 Atl. 886, 60 Am. Rep. 584.

[22]Clement v. Packer, 125 U. S. 309, 31 L. ed. 721, 8 Sup. Ct. 907.

[23]Clement v. Packer, 125 U. S. 309, 31 L. ed. 721, 8 Sup. Ct. 907.

the time they took place, and it is said: "The acts and omissions of the grantor of lands, respecting a disputed boundary line, done or made by him after he has parted with his title, are not admissible against his grantee; and the rule is not changed, although he retains the ownership of other lands affected by the same disputed boundary line, and his acts and omissions relate to his own lands."[24]

§ 235. **The declarations of an agent.**—The acts, and declarations of an authorized agent, if made within the apparent scope of his authority, are binding on the principal.[25] And the principal is bound by such acts and declarations whether he knew them or not. Certainly where the principal authorized the acts or declarations he would be bound. We find the Connecticut court saying: "The acts and declarations of an agent within the apparent scope of his authority are binding on the principal whether he knew it or not."[26] Evidently the general rule as to agency applies in such cases.

§ 236. **Admitted monuments—Others lost.**—When admitted marks and monuments are found, answering to the calls of the survey, they establish conclusively the location. If some only of these marks and monuments can be found, it is entirely competent to show that others answering to the calls did at one time exist.[27] And it is only in the absence of original marks and monuments upon the ground, and the total failure of evidence to supply them, that recourse can be had to the lines and calls of the block, or the lines and calls of any junior member of the block, or any other. Both these methods can not be resorted to at the same time.[28]

[24]Hills v. Ludwig, 46 Ohio St. 373, 24 N. E. 596.

[25]Carney v. Hennessey, 74 Conn. 107, 49 Atl. 910, 53 L. R. A. 699, 92 Am. St. 199.

[26]Carney v. Hennessey, 74 Conn. 107, 49 Atl. 910, 53 L. R. A. 699, 92 Am. St. 199.

[27]Collins v. Clough, 222 Pa. St. 472, 71 Atl. 1077, 15 Ann. Cas. 871.

[28]Collins v. Clough, 222 Pa. St. 472, 71 Atl. 1077, 15 Ann. Cas. 871.

§ 237. **Original notes of survey.**—In establishing an original line of a survey as made by the government, according to the field-notes used in such survey, attention must first be given to calls in such notes for natural or artificial monuments, and if these can not be found recourse may be had to courses and distances. All disputes as to boundary lines are to be governed by the United States survey, and lines of sections and subdivisions thereof are to be located by the original government survey.[29] And it is the universal rule that courses and distances must yield to actually existing monuments, or to the site of their former location, if that has been clearly established.[30] So also it is the rule that the true corner of a government subdivision is where the government surveyors placed it.[31] If that corner be lost it may be relocated by other competent evidence which clearly establishes the corner.[32] If a government corner be lost it may be re-established by the evidence of old residents who once knew of its location and this may be applied to locate a highway which once bounded the granted land, but which was later discontinued.[33] In the latter case the question was as to the location of an old highway which had been discontinued many years. Persons who once knew the location were permitted to testify to such location at the trial.[34]

§ 238. **Omissions in calls may be supplied under certain conditions.**—Where, from all of the surrounding circumstances, it is evident there has been an omission of one of the sides of the tract in a survey and by supplying that omitted side the

[29]Taylor v. Fomby, 116 Ala. 621, 22 So. 910, 67 Am. St. 149; Billingsley v. Bates, 30 Ala. 376, 68 A. M. Dec. 126.

[30]Chan v. Brandt, 45 Minn. 93, 47 N. W. 461; Beltz v. Mathiowitz, 72 Minn. 443, 75 N. W. 699: Yanish v. Tarbox, 49 Minn. 268, 51 N. W. 1051.

[31]Beardsley v. Crane, 52 Minn. 537, 54 N. W. 740.

[32]Beltz v. Mathiowitz, 72 Minn. 443, 75 N. W. 699.

[33]Yanish v. Tarbox, 49 Minn. 268, 51 N. W. 1051.

[34]Yanish v. Tarbox, 57 Minn. 245, 59 N. W. 300.

tract will appear as regular and will carry the required amount of land and, by using six sides, instead of five as found in the description. the said six sides will join and be brought together, it will be permissible for the court to supply the omitted call.[35] In the case cited the quantity of land called for in a patent and certificate of survey was eighty-four acres, and it was said in both documents to be included in five lines and angles. But the plat annexed to the survey represents the tract as one bounded by six lines. If taken to be bounded by five lines the quantity never can be had and the lines can never come together. By using the five courses and distances the lines do not come together and one side of the tract is left open. By connecting with a sixth line the tract will be substantially correct as to area and balance of the lines. Hence it will be presumed that the surveyor omitted to make a record of one of the lines. By supplying the sixth side the patent will be sustained. It was held the court properly supplied the omitted side.

§ 239. **Conflict of calls—Most material calls control.**—It is not uncommon to find a conflict in the calls of a description of a survey. All such conflicts are manifestly the result of errors in reading or entering courses and distances or in copying them. They become very material in all those cases where the line or corner in question is lost. It is then up to the surveyor to make a selection between the conflicting calls. The courts have laid down certain rules to guide the surveyor in his determination to accept certain calls in preference to others. It is not always that the surrounding circumstances will warrant him in accepting those rules in all cases. However, in the great majority of cases the surveyor should be governed by them. It is the rule that the most material and certain calls shall control those which are less material and less certain. A call for a natural object, as a river, a known stream, a spring,

[35]Alexander v. Lively, 5 T. B. Mon. (Ky.) 159, 17 Am. Dec. 50.

or even a marked tree, shall control over courses and distances. Natural objects are the most certain; artificial objects the next and courses and distances the most unreliable calls.[36] The surveyor should look into the surrounding circumstances and then make his election as to the calls he will disregard.

§ 240. **Mistakes in calls of a patent may be corrected.**—A mistake in the calls of a patent may be corrected by a reference to the plat and certificate of survey. As is known the plat and certificate are evidence of the original position of the corners, and when they can be ascertained they will control, though variant from the description contained in the patent.[37] And on a resurvey of land to establish a lost boundary, the original corners established by the government surveyors, if they can be found, govern; or if they can not be found and the place where they were originally established, can be definitely determined, are conclusive regardless of the correctness of the location.[38] So also, a disputed quarter-section corner of land as surveyed by the government, not being otherwise established beyond a doubt, the government surveyor's field-notes, giving the trend of the line, together with the distances run, are material and competent evidence in fixing the original location of such corner.[39] As we shall see hereafter, extrinsic evidence may be received in establishing the location of the original corner, now lost or obliterated.[40]

§ 241. **Plan not yet made or recorded.**—It sometimes happens that an owner will have a tract of land subdivided into lots and blocks and, either never have a plat made thereof, or having had a plat made, neglected to record it. Subsequently he will execute and deliver conveyances of the lots and blocks

[36]Stafford v. King, 30 Tex. 257, 94 Am. Dec. 304.

[37]Steele v. Taylor, 3 A. K. Marsh, (Ky.) 225, 13 Am. Dec. 151.

[38]Washington Rock Co. v. Young, 29 Utah 108, 80 Pac. 382, 110 Am. St. 666.

[39]Kellog v. Finn, 22 S. Dak. 578, 119 N. W. 545, 133 Am. St. 945.

[40]Post ch. XVI.

so surveyed. It is manifest that the party must resort to evidence *aliunde* to identify the tract conveyed. If a plat has been made and not recorded undoubtedly the court would receive such unrecorded plat to identify the land conveyed.[41] As a matter of fact the owner should not have conveyed the property by a reference to the unrecorded plat. In some states there is a positive statute against it. Without the identification of the tract described by evidence dehors the instrument it would be ineffective to convey the property intended. The platting of land into streets, blocks and lots operates as a dedication of the streets and public places to the use of the public. This is so by statute in some states.[42] And it has been held where land is conveyed as bounded by a street, represented on a plan, but not yet made, the soil of the contemplated street, though owned by the grantor, does not pass by the conveyance.[43]

[41] Post ch. XVI.

[42] Minn. Gen. Stat. 1913, sec. 6857; Wis. 1921 Stat., sec. 2263.

[43] Palmer v. Dougherty, 33 Maine 502, 54 Am. Dec. 636.

CHAPTER XIV

RIPARIAN RIGHTS

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§ 242. **Generally.**—One of the most important property rights is that of the riparian proprietor. This right has always been recognized and carefully guarded by the courts. Furthermore the government has, from an early date, where there has been no fraud or mistake in locating the meander line, held that, in conveying lands adjacent to a body of water, it has parted with all of its riparian rights and transferred them to the patentee. These rights manifest themselves in many ways, such as dock privileges, shore privileges, mill privileges, dam privileges, rights in the bed under shallow waters, rights in dried up beds of lakes, rights where the stream or body of water has suddenly changed the shore line, rights where the change has been gradual and imperceptible, and kindred rights. In this chapter we shall consider all of these rights, especially with reference to the proper division thereof among the riparian proprietors. We shall treat of varied problems which the professions meet with in actual practice, citing decisions of the courts to sustain each proposition laid down. We shall consider alluvium, accretion, avulsion, and reliction, especially treating of the rights of the riparian owner in each instance, giving concrete examples which have been before the courts.

In those states where lakes are numerous a large amount of litigation has been before the courts relative to the proper division of lake beds left dry by the recession of the waters. What is the proper division among riparian owners of the beds of streams or lakes left dry? How should the dock line between two riparian owners on a navigable lake or river be run? How should the division line between riparian owners be run in partitioning the equitable rights of riparian owners to flats or shallows? These questions are frequently confronting the professions and, to the end that such problems may be answered properly, equitably and legally this chapter is largely devoted. A large number of diagrams have been inserted. These should be carefully studied by the reader.

§ 243. **Alluvium soil is of imperceptible growth.**—Bouvier, in his law dictionary, defines alluvium to be: "That increase of the earth on a shore or bank of a river, or to the shore of the sea, by the force of the water, as by a current or by the waves, which is so gradual that no one can judge how much is added at each moment of time."[1] Many nice questions have arisen in the divisions of these accumulations between the riparian owners. The shape and length of the shore, the size of the body of water, and the lengths of the old and new shore lines play an important part in such division. So, also, the thread of the stream, and the center and shape of small lakes and ponds are some of the controlling features. In a partition of the right to build docks to the navigable parts of a lake, the shape and length of the line of navigability, as well as the shape and length of the shore line are of prime importance, as we shall see in this chapter.

It will be seen by a glance at the authorities cited in the following pages that different courts have established various

[1]Bouvier's Law Dictionary, Title, "Alluvium", Angell, Water Courses, 53.

rules in seeking to find an "equitable division" of the alluvium, or what amounts to the same thing, an equitable division of dock privileges to the line of navigation. Many courts confess no general rule can be laid down. However, many excellent rules have been promulgated by the courts and they should not be disregarded. They point the way, not only to an equitable division, but to one which will be sustained by the courts. The reader is referred to the numerous citations, diagrams and demonstrations in the following pages. They will form a basis for a partition of the shore lines of most bodies of water and should be carefully studied. When the surveyor has such a problem he should procure all possible data, consult the authorities, especially of his own state, and follow the rule which will equitably partition the shore line or rights among all riparian owners of that part of the body of water.

Treating further of alluvium we find the courts have said: "Alluvium is a term applied to those accumulations of soil, earth and loose stones or gravel brought down by a river, which, when spread out to any extent, form what is called alluvial land. It is the addition made to land by the washing of the seas or river; and its characteristic is its imperceptible increase, so that it can not be perceived how much is added in each moment of time."[2]

§ 244. **Riparian owners are the owners of the alluvial deposits.**—All of the courts agree that the riparian owner, if not restricted by his grant, is the owner of the alluvial deposit, and, subject to the rights of the public to pass over the water, to his equitable portion of the bed of the stream or lake to the line of navigability.[3] It was said by the court in the case cited:

[2]Freeland v. Pennsylvania Ry. Co., 197 Pa. St. 529, 47 Atl. 745, 80 Am. St. 850, 58 L. R. A. 206; Lovingston v. St. Clair Co., 64 Ill. 56, 16 Am. Rep. 516.

[3]Lovingston v. St. Clair Co., 64 Ill. 56, 16 Am. Rep. 516.

"The only construction to be given these grants is that the United States has conveyed the land to the bank of the Mississippi river. It follows that the grantees were riparian owners of the alluvial formation attached to their lands." And in a case where the right of the riparian proprietor to take sea weed stranded upon the shore it was said: "The right to take sea weed stranded upon a beach belongs to the littoral proprietor (so long as the state asserts no claim), upon the doctrine of accretion, and is not a public right."[4] And it was decided by the Iowa court, in a case in which the plaintiff was the owner of certain lands fronting on the meander line of the Missouri river, and between which line and the water a strip of land had been gradually added since the year 1860, by the action of the river, and which addition was not caused by a sudden disruption from the land of another but was slow and imperceptible, that the plaintiff was the owner of such strip.[5] So too, we find that the alluvium or alluvial belongs to the proprietor of the shore.[6] The reader should be careful not to confuse alluvium or alluvial with avulsion. Avulsion is a sudden and perceptible change or growth.[7] And it has been held that the title by accretion or alluvium extends to the new shore line though beyond the original line, once washed away, and in which the stream thereafter receded.[8] And the United States Supreme Court has held that where a stream changes its course gradually by alluvial or alluvium, the owner of the land on such stream, holds to the stream, including the alluvium; and also that owners of land thus bounded are subject to loss of what they have gained by the same means—the gradual washing away of the soil.[9] And

[4]Carr v. Carpenter, 22 R. I. 528, 48 Atl. 805, 53 L. R. A. 333.

[5]Coulthard v. Stevens, 84 Iowa 241, 50 N. W. 983.

[6]1 Washburn Real Property 451.

[7]Post § 246.

[8]St. Louis v. Rutz, 138 U. S. 226, 34 L. ed. 941, 11 Sup. Ct. 337.

[9]New Orleans v. United States, 10 Pet. (U. S.) 662, 9 L. ed 573.

that court has held that imperceptible accretion belongs to the owner of the shore, whether the water is fresh or salt.[10] Likewise we find that where a lot is bounded by water and that water gradually shifts, the water line remains the boundary, and a deed describing the lot by number conveys the land to the water line.[11] And it is the rule that the right of a riparian owner is a vested one and it applies to streams that do or do not overflow.[12] So also, grants of land, in Illinois, to fresh water rivers, give title to the grantee to the thread of the stream and the owner is entitled to the accretion.[13] And the size of the river does not alter the rule — it applies to large and small streams.[14] It is said that an island in a nonnavigable stream formed by accretion, and which was not meandered, belongs to the owner of the shore on the same side of the stream or current.[15]

§ 245. **Dereliction—Reliction.**—It would seem that dereliction and reliction are the same. The former is defined to be land left uncovered by the receding of the water.[16] The latter is represented as an increase of land by the retreat or recession of the sea or river.[17] It is said that the ebb and flow of the tide leaves the title to the bed of the stream or sea in the state.[18] Where the recession is gradual, or where it takes place in fresh water rivers, the bed of which belongs to riparian owners, the land so formed by reliction belongs to the riparian owner. It has been held in the United States that if a navigable lake recedes gradually the bare land belongs to the owner of the

[10]Shively v. Bowlby, 152 U. S. 1, 38 L. ed. 331, 14 Sup. Ct. 548.

[11]Jeffries v. East Omaha Land Co., 134 U. S. 178, 33 L. ed. 872, 10 Sup. Ct. 518.

[12]St. Clair Co. v. Lovingston, 23 Wall. (U. S.) 46.

[13]Jones v. Soulard, 24 How. (U. S.) 41.

[14]Ocean City Association v. Shriver, 64 N. J. L. 550, 46 Atl. 690. 51 L. R. A. 425.

[15]2 Washburn Real Property 452-3; Ex parte Jennings, Pars Prima, 6 Cow. (N. Y.) 537; Webber v. Axtell, 94 Minn. 375, 102 N. W. 915, 6 L. R. A. (N. S.) 194.

[16]2 Blk. Com. 262.

[17]Bouvier's Dictionary.

[18]Angell Tide Waters, 264-7.

bank, but on the other hand if the recession be sudden and sensible, the "made land" belongs to the state.[19] And Blackstone lays down the rule that where the dereliction or recession is gradual the land belongs to the riparian owner.[20] But when the change is sudden it belongs to the government.[21] The latter situation would probably not be held to obtain in this country, as it has generally been held that the former owner may claim such land wherever he can find it and identify it as his own.[22]

§ 246. **Avulsion.**—Avulsion is defined to be the removal of a considerable quantity of soil from the land of one man, and its deposit on or annexation to the land of another, suddenly and by the perceptible action of the water.[23] And it is said in that event the land belongs to the first owner.[24] But in order that it be avulsion the change must be sudden. This sudden change does not deprive the owner of his fee or change the boundary lines as they were at the time the land began to be washed away.[25] And the same rule holds good where a river, the boundary line of two states, suddenly changed its course and cut off a large tract of country from one state and left it annexed to the other state by cutting across a bend in the stream.[26] And it was said in that case that the middle of the channel of the Missouri river, according to its course as it flowed prior to the avulsion of July 5, 1867, was the true

[19]Murry v. Sermon, 8 N. Car. 56.

[20]2 Blk. Com. 262.

[21]2Blk. Com. 262.

[22]St. Louis v. Rutz, 138 U. S. 226, 34 L. ed. 941, 11 Sup. Ct. 337.

[23]2 Washburn Real Property 452.

[24]Bracton 221.

[25]St. Louis v. Rutz, 138 U. S. 226, 34 L. ed. 941, 11 Sup. Ct. 337; St. Anthony Falls Water Power Co. v. St. Paul Water Coms. 168 U. S. 349, 42 L. ed. 497, 18 Sup. Ct. 157; Wallace v. Driver, 61 Ark. 429, 33 S. W. 641, 31 L. R. A. 318; Keokuk & Hamilton Bridge Co. v. People, 145 Ill. 596, 34 N. E. 482; Rumsey v. New York Ry. Co., 133 N. Y. 79, 30 N. E. 654, 15 L. R. A. 618.

[26]Missouri P. R. Co. v. Nebraska, 164 U. S. 403, 41 L. ed 489, 25 Sup. Ct. 580.

boundary between the states of Missouri and Nebraska. And the boundary of Kentucky on the Ohio river extends to low-water mark.[27]

§ 247. Riparian rights in waters in Pacific coast states.— As is well known, at common law, the riparian owner was entitled to the use of substantially the entire flow of a stream as it passed through or along his property.[28] This rule has been changed in practically all of the Pacific coast or mining states. The change was made of necessity by reason of surrounding and peculiar circumstances and conditions in those states. In some of those states, statutes have been enacted, which, by the way, are but a re-affirmation of the prior decisions of the courts of the jurisdiction in question. This was held to be the law in Colorado prior to the enactment of any statute.[29] It is the undoubted rule of law in that state that the riparian proprietor has no riparian rights in the waters of the streams bordering his land which may not be appropriated, either prior to or subsequent to issue of patent. This by reason of the necessity wrought by the surrounding circumstances. Such waters may be appropriated by others than riparian owners for the purposes of irrigation or mining.[30] In the case last cited the court at page 447 says: "We conclude, then, that the common-law doctrine giving the riparian owner the right to the flow of water in its natural channel upon and over his land, even though he makes no beneficial use thereof, is inapplicable to Colorado. Imperative necessity, unknown to the country which gave it birth, compels the recognition of another doctrine in conflict therewith. And we hold that, in the absence of existence of statutes to control, the first appropriator of water from a natural stream for a beneficial pur-

[27]Henderson Bridge Co. v. Henderson, 173 U. S. 592, 43 L. ed. 823, 19 Sup. Ct. 553.

[28]Coffin v. Left Hand Ditch Co., 6 Colo. 443.

[29]Coffin v. Left Hand Ditch Co., 6 Colo. 443.

[30]Coffin v. Left Hand Ditch Co., 6 Colo. 443.

pose, has, with the qualifications contained in the constitution, a prior right thereto, to the extent of such appropriation."[31] It was subsequently held in that state that the right acquired by prior appropriation is not in any way dependent upon the *locus* of its application to the beneficial use designed.[32] And it is said that a valid appropriation of the waters of a stream, to the exclusion of the riparian owner, may be made for the purpose of irrigation, though the lands to be irrigated are not located on the banks or in the neighborhood of the stream.[33] And we find the highest court in the country saying, that every state has the power, within its dominion, to change the rule of the common law with reference to the rights of the riparian owner to the continual natural flow of the stream, and permit the appropriation of the water for such purposes as it deems wise.[34] But this does not mean that all of the water of a navigable river could be diverted so as to destroy navigation in derrogation of the rights of all of the people.[35] The courts of Nevada also take a similar stand as to the rights of the riparian owner to the stream flowing along his lands and hold that the common-law doctrine is not applicable to Pacific coast states and that prior appropriation of such waters gave the better right to the use of the running waters to the extent in quantity and quality necessary for the uses to which the water was applied.[36] While the courts of those states do not say so yet we infer that other riparian rights remain as in other jurisdictions unimpaired. The necessity for water for irrigation purposes and for mining to the end that the country may be developed and cropped and

[31]Schilling v. Rominger, 4 Colo. 100.

[32]Hammond v. Rose, 11 Colo. 524. 19 Pac. 466, 7 Am. St. 258.

[33]Hammond v. Rose, 11 Colo. 524, 19 Pac. 466, 7 Am. St. 258.

[34]United States v. Rio Grande D. & I. Co., 174 U. S. 690, 43 L. ed. 1136, 19 Sup. Ct., 770.

[35]United States v. Rio Grande D. & I. Co., 174 U. S. 690, 43 L. ed. 1136, 19 Sup. Ct., 770.

[36]Jones v. Adams, 19 Nev. 78, 6 Pac. 442, 3 Am. St. 788.

other parts developed for the mineral wealth has brought about the change of the old rules to meet local conditions. We have deemed it advisable to mention the position taken by the western states relative to this matter, not that it properly belongs in this work, but as a matter connected with riparian rights generally.

§ 248. **Accretion and alluvium—Partition of.**—The courts are frequently called upon to partition the alluvial deposits, flats, dock privileges, made land, and similar rights. The division of such rights among riparian owners has been a fruitful source of litigation and the courts have promulgated certain rules for the partition thereof, which have been exceedingly useful to the professions. Among such rules we find the following: 1. Measure the ancient bank and compute the number of feet owned by each proprietor. 2. Divide the new bank into as many equal parts as there were feet in the old bank and draw lines from the old points of division to the new ones. In applying this rule to the old shore lines the general trend of the line should be taken and not the actual length, where the old line has deep indentations and sharp projections. The points of measurement should be to the head-lands. In that event the old lines should be equitably apportioned to different owners with reference to the available land on the shore.[37] In running the partition lines between riparian owners, it is said, they should be extended to navigable waters, giving to each owner the same proportional number of feet along the new shore line that his lot line bore to the old shore line.[38]

[37]Deerfield v. Arms, 17 Pick (Mass.) 41, 28 Am. Dec. 276; Kehr v. Snyder, 114 Ill. 313, 2 N. E. 68; Johnson v. Jones, 79 Ind. 141, 17 L. ed. 117; Peuker v. Canter, 62 Kans. 373, 63 Pac. 617; Thornton v. Smith, Grant & Co., 10 R. I. 477, 14 Am. Rep. 701; Groner v. Foster, 94 Va. 650, 27 S. E. 493; Northern Pine Land Co. v. Bigelow, 84 Wis. 157, 54 N. W. 496, 21 L. R. A. 776.

[38]Jones v. Johnston, 18 How. (U. S.) 150, 15 L. ed. 320; Smith v. Johnson, 71 Fed. 648; Clark v. Campau, 19 Mich. 325.

§ 249. **Right to accretion may rest on lands of another.**— A novel case is that of Peuker v. Canter, decided by the Kansas court, in which the court partitioned alluvium between two adjoining owners of lands in a most striking manner. We quote from the opinion of the court: "Plaintiff is the owner of a forty acre tract of land, which, at the time of the government survey, in 1855, and presumably when the patent was issued, was separated from the Missouri river on the west by two fractional forty acre tracts belonging to the defendant. By erosion of the water a part of the defendant's land was washed away until the river reached the plaintiff's said tract of land and by eating away part of it left the latter a shore line of about seven hundred feet. The river then receded forming alluvium from the line of contact with plaintiff's land westward within the original surveyed lines of the defendant's land and past the same to the river. This alluvium attached itself to what was left of defendant's land. Held the plaintiff was entitled, not only to such alluvium as formed within his original lines but also to an equitable proportion of that formed within the original surveyed lines of the defendant's land, and beyond the river bank."[89] It will thus be seen that the plaintiff was allowed to have a portion of the alluvium which was formed on and rested on the land originally owned by the defendant. In fact, as we read the case, the plaintiff was permitted to follow the river as it receded and to retain an equitable proportion of such shore line, though by so doing possessed land which rested on and was formed on, as alluvium, the former lands of the defendant. Fig. 49. Referring to the figure plaintiff owned N. W. of N. E. of section 30; defendant owned lots 1 and 2, section 30. The positions of the stream in the years 1855, 1870, and in 1900, are shown on the dia-

[89] Peuker v. Canter, 62 Kans. 373, 63 Pac. 617; Payne v. Hall (Iowa), 185 N. W. 912.

gram. E represents the tract given to plaintiff and D and F the tracts given to the defendant. It will be seen that this allowance takes the boundary lines beyond the lines of the

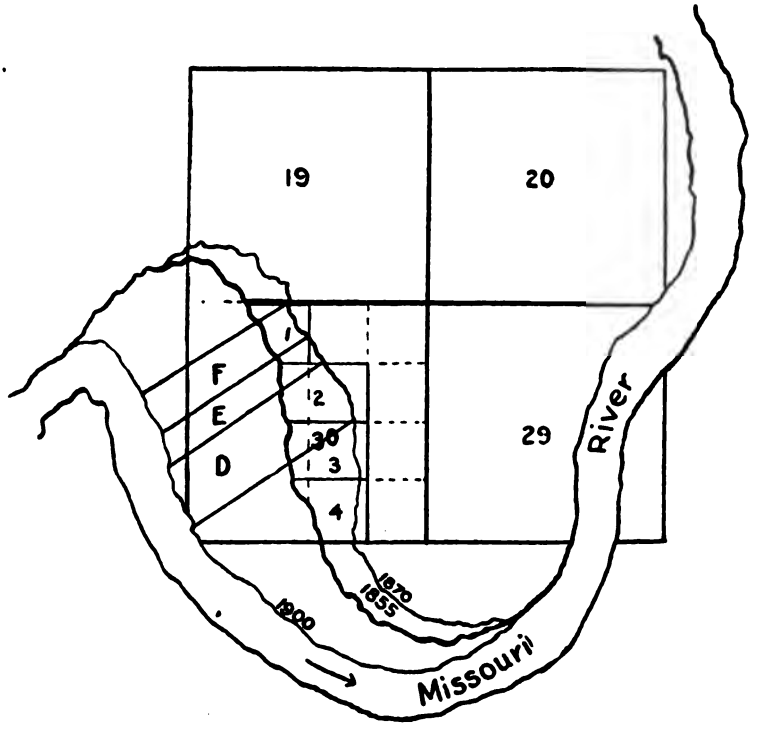


Fig. 49

section as it was originally surveyed. This case seems extreme. It is striking because of the facts in the case. We doubt the soundness of the decision in the particular case, though sustained by a long line of authorities both in England and America.[40] In the case of Welles v. Bailey, the Connecticut court at page 316 says: "If a particular tract was entirely shut off from a river by an intervening tract, and that inter-

[40]Welles v. Bailey, 55 Conn. 292, 10 Atl. 565.

vening tract should be gradually washed away until the remoter tract was reached by the river, the latter tract would become riparian as much as if it had been originally such. This follows necessarily from the ordinary application of the principle. All original lines submerged by the river have ceased to exist; the river is itself a natural boundary, and every changing condition of the river in relation to adjoining lands is treated as a natural relation and is not affected in any manner by the relations of the river and the land at any former period. If, after washing away the intervening lot, it should encroach upon the remote lot and should then begin to change its movements in the other direction, gradually restoring what it had taken from the remote lot, and finally all that it had taken from the intermediate lot, the whole by the law of accretion would belong to the remote lot. Having become riparian, it has all riparian rights. This general principle is recognized by all of the text writers and by numerous decisions of the English and American courts. The river boundary is treated in all cases as a natural boundary and the rights of the parties as changing with the change of its bed." This case was cited approvingly in Peuker v. Canter.[41] Other cases holding similarly cited therein.[42]

The case of Widdecombe v. Chiles,[43] is no less striking than the Peuker case. In the Widdecombe case the plaintiff was the owner of a fractional tract situated in what would have been the north half of section 22, had that section been a full one, consisting of eight and sixty-eight hundredths acres. The

[41]Peuker v. Canter, 62 Kans. 373, 63 Pac. 617; Payne v. Hall (Iowa), 185 N. W. 912.

[42]Jeffris v. East Omaha Land Co., 134 U. S. 178, 33 L. ed. 872, 10 Sup. Ct. 518; Banks v. Ogden, 2 Wall. (U. S.) 57; New Orleans v. United States, 10 Pet. (U. S.) 662, 9 L. ed. 573; Naylor v. Cox, 114 Mo. 232, 21 S. W. 589; Cooley v. Golden, 117 Mo. 33, 23 S. W. 100; Benson v. Morrow, 61 Mo. 345; Buse v. Russell, 86 Mo. 209; Rees v. McDaniel, 115 Mo. 145, 21 S. W. 913; Gifford v. Lord Yarborough, 5 Bing, 163.

[43]Widdecombe v. Chiles, 173 Mo. 195, 73 S. W. 444, 61 L. R. A. 309.

defendant was the owner of the south half of section 22. Referring to Fig. 50, at the time of the original survey in 1826, the river's course was as shown by the line A-B-C. It grad-

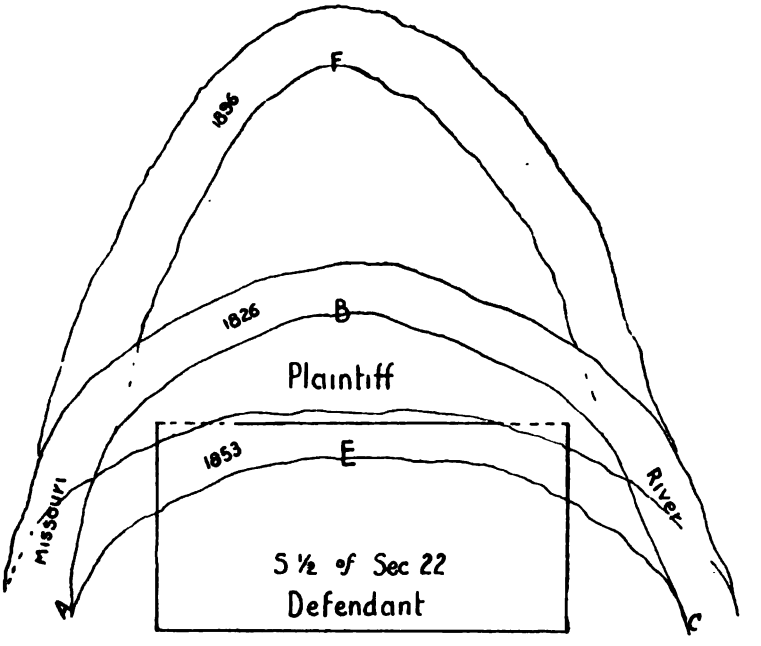


Fig 50

ually changed its bed by wearing away the soil in a southerly direction until in 1853, its southern bank took the course A-E-C. Then the bank commenced to fill in gradually by accretion until 1896, when it had reached the course A-F-C, adding some two hundred acres to the original fraction. The plaintiff claimed this property as an accretion to his fraction of eight and twenty-six hundredths acres. The defendant claimed the land as an accretion to his half section by reason of his attained riparian rights in 1853. It will be seen that the fractional part of the section was entirely washed away and the south half of the section became, so to speak, riparian.

The court held that the defendant owned the "made land" entirely, thus wiping out all of the interest of the plaintiff. Several cases are cited by the court.[44] In practically all of these cases the argument is made that the plaintiff having lost by reliction his lands and the defendant's lands having become riparian thereby and thereafter increased by accretion, the latter would be entitled to all of said accretion, even if his

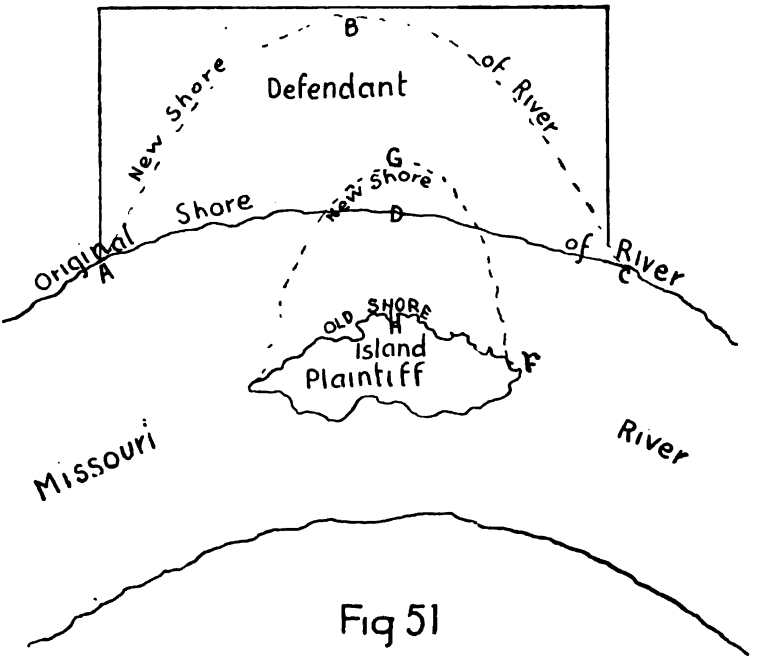


Fig 51

lands would be made to extend over the former bed of the river and the entire fraction of the plaintiff. In his valuable work on Waters and Water Rights, Farnham criticises this position warmly and we believe rightly.[45] He also mentions

[44]Peuker v. Canter, 62 Kans. 373, 63 Pac. 617; Wallace v. Driver, 61 Ark. 429, 33 S. W. 641, 31 L. R. A. 317; Naylor v. Cox, 114 Mo. 232, 21 S. W. 589; Welles v. Bailey, 55 Conn. 292, 10 Atl., 565; Payne v. Hall (Iowa), 185 N. W. 912.

[45]Farnham on Waters and Water Rights, Sec. 848.

Peuker v. Canter, and Welles v. Bailey, in connection with this criticism. He states, which seems to be the case, that what the court says in the Welles case about this principle of the law is mere arbiter and in no way the statement of a principle.

A similar question was before the court in the case of Naylor v. Cox,[46] in which the same principle is affirmed under slightly different circumstances. Referring to Fig. 51, the plaintiff was the owner of an island in the Missouri river and the defendant owned the shore on the north and opposite bank of the river. The line A-D-C represents the north bank of the river at the time of the original survey. The line E-H-F represents the north bank of the island at the same time. At that time and for many years thereafter most of the boating passed through north of the island. Later the river between the island and the north bank began to fill in gradually and after many years the north shore of the main land began to wash away and formed a new shore at A-B-C. The north shore of the island gradually grew by accretion so that its north bank took the course of the line E-G-F. It was held that the plaintiff was the owner of all of the accretion to the island E G F H E, even where it overlapped the subsoil formerly owned by the defendant. This case is not subject to much criticism as the plaintiff's land was originally riparian and he would be entitled to all accretions to the original shore on general principle. Fig. 51.

On the other hand we find the same court departing in part from this principle and distinguishing the case at bar from Naylor v. Cox.[47] Referring to Fig. 52, A-B represents the original shore at the time of the government survey. A C B D A represents the land washed away A C B E A represents the later accretion to the shore A C B. Plaintiff owned that

[46]Naylor v. Cox, 114 Mo. 232, 21 S. W. 589.

[47]Crandall v. Allen, 118 Mo. 403, 24 S. W. 172, 22 L. R. A. 591; Naylor v. Cox, 114 Mo. 232, 21 S. W. 589.

part of the southeast quarter of section 21 lying south of the river. The defendant owned the northwest quarter and the west half of the northeast quarter of section 28. The river washed away a large part but not all of the land of the plain-

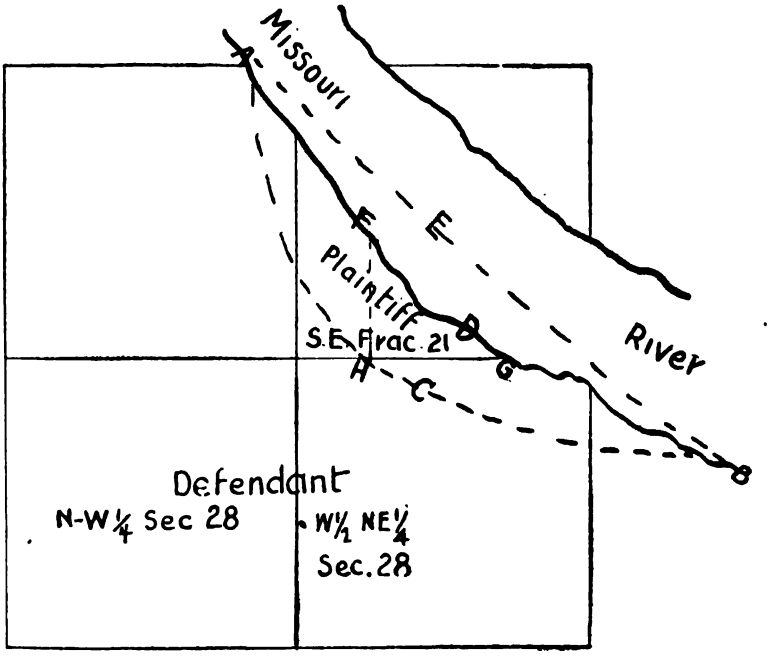


Fig. 52

tiff and a part of the north side of the land of the defendant. Thereafter the river gradually, by accretion, added to the plaintiff's and defendant's lands, and receded or changed its bed so that the southerly bank was farther north than the original bank. The defendant claimed to own the accretion F G H F, and the plaintiff also claimed such accretion. It was held that all such accretion belonged to the plaintiff. We believe this is the law. Fig. 52.

It will be noted that we have quite sharply criticised the

Peuker case. Notwithstanding all we have said in that respect we must confess that that case and the other cases holding similarly are well sustained by the authorities. The holdings in those cases are the result of consistently following the principle that all alluvial formations, unless excepted from the grant, belong to the riparian owner. The Peuker case is cited approvingly in McBride v. Steinweder.[48] In the latter case the court holds that where a river changes its course by slow and imperceptible processes the boundary changes with that change, and the center of the main channel of the Missouri river is the boundary between the states of Kansas and Missouri. In that case the main channel of the river had shifted its position during a period of fifty years, two miles toward and encroached upon the Missouri side. A large number of cases is cited approvingly by that court.[49]

§ 250. **State boundary—Gradual changes.**—The rule applied to the boundary lines of private parties bordering on rivers is also applied to the boundaries between different states. If a river gradually changes its banks the boundary line changes with it, whether it is between individuals or between states, or between an individual and a state. The same rule applies to boundaries between nations.[50] In the latter case the court lays down the principle that a navigable river dividing the territory of two states and which changes its position by gradual and imperceptible encroachment or insensible recession, so that the process by which the removal is accom-

[48]McBride v. Steinweden, 72 Kans. 508, 83 Pac. 822.

[49]Barney v. Keokuk, 94 U. S. 324, 24 L. ed. 224; Jeffris v. East Omaha Land Co., 134 U. S. 178, 33 L. ed. 872, 10 Sup. Ct. 518; St. Louis v. Rutz, 138 U. S. 226, 34 L. ed. 941, 11 Sup. Ct. 337; St. Anthony Falls Water Power Co. v. Commissioners, 168 U. S. 349, 42 L. ed. 497, 18 Sup. Ct. 157; Wood v. Fowler, 26 Kans. 682, 40 Am. Rep. 330; Peuker v. Canter, 62 Kans. 363, 63 Pac. 617; Perkins v. Adams, 132 Mo. 131, 33 S. W. 778; Wood v. McAlpine, 85 Kans. 657, 118 Pac. 1060; Fowler v. Wood, 73 Kans. 511, 85 Pac. 763.

[50]Fowler v. Wood, 73 Kans. 511, 85 Pac. 763.

plished can not be detected while in operation, the boundary follows the shifting thread of the stream. And this is reasonable. The principle has been repeatedly affirmed.[51] In fact, the authorities quite generally agree on this proposition.

§ 251. **State boundary—Sudden changes.**—But when there has been a sudden change in the boundary line between two states so that the change is perceptible the rule is quite different. In that event the boundary line remains the same as before the change.[52] And the rule is that where there has been a sudden change in a stream, the boundary between two states. and it has, by a freshet or otherwise changed its course, and cut a new channel for itself the boundary between the states or nations does not change but remains as formerly fixed. The Supreme Court of Kansas in the case cited affirms the principle long established that where a river is at flood stage and an ice-gorge causes a sudden change and violent interruption of the water, whereby the lands upon one side are visibly degraded or submerged or a new channel is cut, the state boundary remains stationary at its former location, and the titles and boundaries of private owners remain unchanged.[53] This principle has been repeatedly affirmed as will be evident upon reading some of the many authorities.[54] To determine whether or not the change is imperceptible or sudden is a question of proof as any other fact is proven.[55] Of course a court would take judicial notice of the boundaries of a state.[56] But it is

[51]McBride v. Steinweden, 72 Kans. 508, 83 Pac. 822; Peuker v. Canter, 62 Kans. 363, 63 Pac. 617; Nebraska v. Iowa. 143 U. S. 359, 36 L. ed. 186. 12 Sup. Ct. 396; Welles v. Bailey, 55 Conn. 292, 10 Atl. 565.

[52]Fowler v. Wood, 73 Kans. 511, 85 Pac. 763.

[53]Fowler v. Wood, 73 Kans. 511, 85 Pac. 763.

[54]McBride v. Steinweden, 72 Kans. 508, 83 Pac. 822, Peuker v. Canter, 62 Kans. 363, 63 Pac. 617; Nebraska v. Iowa, 143 U. S. 359, 36 L. ed. 186, 12 Sup. Ct. 396; Welles v. Bailey, 55 Conn. 292, 10 Atl. 565.

[55]9 Ency. of Ev. 400-1.

[56]7 Ency. of Ev. 910-12.

doubtful if it could take notice of sudden or imperceptible changes or the extent thereof.

§ 252. **Boundary line between states center line of main channel.**—Where a river forms the boundary line between two states, unless otherwise provided by the admission act, the line of division thereof would be the center of the main channel of such stream.[57] This may or may not be the center of the stream, and the boundary line between the state of Wisconsin and the state of Minnesota is the principal navigable and navigated channel of the Mississippi river and such boundary line need not necessarily be in the middle of the river but may be very near one side of the river at places and very near the other side at other points. It is evident that such a line is a changing one with reference to the middle of the stream.[58] In determining the boundary line in such cases the term Mississippi river means the broad expanse of water; and the numerous bayous, though navigable, are not included therein.[59] And it has been held that long acquiescence of a certain boundary line between two states by such states may be conclusive on such states as to its location.[60] So too, private parties owning lands in Wisconsin along such stream own to the center of the main channel of the river, subject to the public interests therein.[61] But in Minnesota the private individual would own to high water-mark of a navigable stream only.[62]

§ 253. **Unsurveyed islands in navigable rivers.**—As to the title to unsurveyed islands in navigable rivers the authorities are not in accord in the several states. In those states holding that the riparian owner owns to the center of the main channel

[57]Franzini v. Layland, 120 Wis. 72, 97 N. W. 499.

[58]Franzini v. Layland, 120 Wis. 72, 97 N. W. 499.

[59]Franzini v. Layland, 120 Wis. 72, 97 N. W. 499.

[60]Franzini v. Layland, 120 Wis. 72, 97 N. W. 499.

[61]Franzini v. Layland, 120 Wis. 72, 97 N. W. 499.

[62]Schurmeier v. St. Paul, etc., Ry. Co., 10 Minn. 82, 88 Am. Dec. 59.

of the stream, subject to the public rights in such stream to navigate the same, it is held that such owner owns such island unless it can be shown that there was a mistake in the original survey, or in the report thereof, and that such island was unintentionally omitted from such survey, or that there had been a fraud perpetrated on the government in making such original survey.[63] In such cases such fraud can only be taken advantage of by the government, and if it sees fit to overlook it the riparian proprietor will own such island.[64] But in Minnesota the state would own such island, if in a navigable stream, that is, in such cases the riparian proprietor would not own beyond the water's edge.[65] These two cases represent the two lines of decisions in the several jurisdictions. But if the stream was not navigable then the riparian proprietor, even in states like Minnesota, would own to the center of the main channel of the stream.[66]

§ 254. **Apportion navigable waters to owners of shore line.**—The courts frequently have occasion to apportion, among the owners of the shore line, the line of navigable waters fronting on such lands. The law applied in such cases is akin to the rule for the apportionment of alluvium. The case of Northern Pine Land Company v. Bigelow is such a case.[67] The court lays down a rule in that case, which, to us, seems sound. We can do no better than to quote from the opinion of the court. The court says: "Measure the whole shore line of the cove or bay and the line of navigable water in front of the same and apportion the latter among the owners

[63]Franzini v. Layland, 120 Wis. 72, 97 N. W. 499.

[64]Franzini v. Layland, 120 Wis. 72, 97 N. W. 499.

[65]Lamprey v. State, 52 Minn. 181, 53 N. W. 1139.

[66]Schurmeier v. St. Paul & C. Ry. Co., 10 Minn. 82, 88 Am. Dec. 59.

[67]Northern Pine Land Co. v. Bigelow, 84 Wis. 157, 54 N. W. 496, 21 L. R. A. 776; Menasha Wooden-Ware Co. v. Lawson, 70 Wis. 600, 36 N. W. 412; Whitney v. Detroit Lumber Co., 78 Wis. 240, 47 N. W. 425.

according to the length of their respective holdings on the shore line, drawing straight lines between the corresponding points of division on the two lines. Actual shore and not meandered lines should be measured, but when there are deep indentations or sharp projections in the shore its general trend only should be followed, and so also in the measurement of the navigable water line. The points between which the lines of navigable waters are to be measured should be determined by lines bisecting the angles made by the shore lines at the head lands at each side of the cove or bay and produced from such head lands to the line of navigable water." The line of nav-

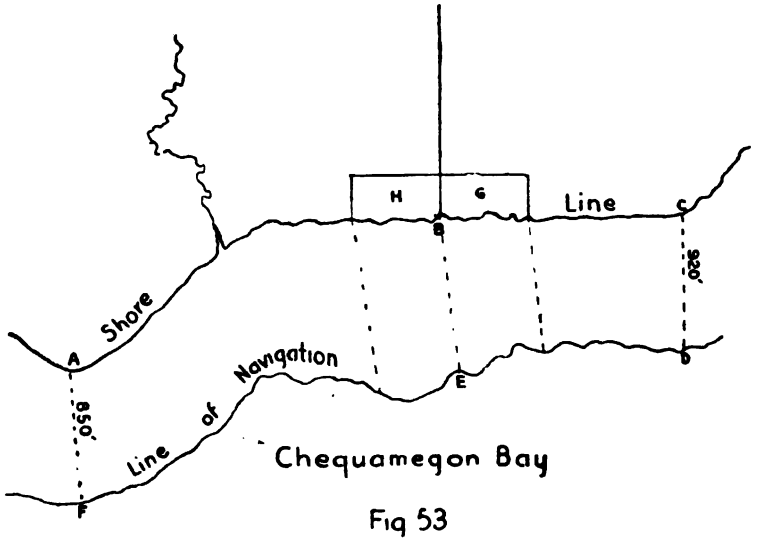


Fig 53

igability will be the line connecting these two points and running along the line of actual navigability, and the distance will be the measured distance between the two points taken along that line. Fig. 53. Referring to that figure the following proportional formula will give the location of the point of division on the line of navigation: ABC ; DEF :: BC : X (DE). Again referring to the diagram plaintiff owned tract

H and defendant owned tract G. ABC represents the shore line; DEF represents the line of navigable water; the question before the court was where should the dividing line between the piers be located? By actual measurement DF was 12,206 feet; EF 8,283 feet; BE 2,472 feet; DE 3,383 feet. EF and DE were obtained by computation. The court held the line of division between the plaintiff's and defendant's lands was the line BE. Justice Orton dissented from the majority opinion. Notwithstanding the dissenting opinion we believe the majority opinion is sound and sustained by a long line of decisions.

§ 255. **Shifting water line the boundary.**—It was held in a Minnesota case that where a government lot abuts on a lake, the shifting water line, as the lake recedes, and not the meander line, is the boundary of the lot.[68] This is a case where a lake was the boundary on the west side of lots 2 and 3 of section 32, of a certain town and range, said lots lying on the westerly side of the section. A considerable part of the west side of the section was covered by the lake as it was at the time of the original survey. The lake receded over 200 rods—more than one-half mile—and into section 31, lying west thereof. It was held that the riparian owner of lots 2 and 3 of section 32, would hold the boundary line to the lake in its changed condition. Proof was given to show that the meander line, as originally run, was along the shore of the lake, and it gradually receded as the lake partially dried up; that in wet seasons, in later years, the lake would again rise and overflow a part of its former bed. Fig. 54 will illustrate the situation. Tract in dispute BCDE, all within the boundaries of section 31. Owner of lots 2 and 3 in section 32 sold strip ABC to party to the action, who claimed the so-called alluvium and the court held in his favor. It seems to us that

[68]Sherwin v. Bitzer, 97 Minn. 252, 106 N. W. 1046.

the holding of the court is subject to criticism. It will be noted that the boundary lines were held to be CD and BE. These lines are either a prolongation of the lot lines or parallel thereto. In determining the amount of new shore line to each

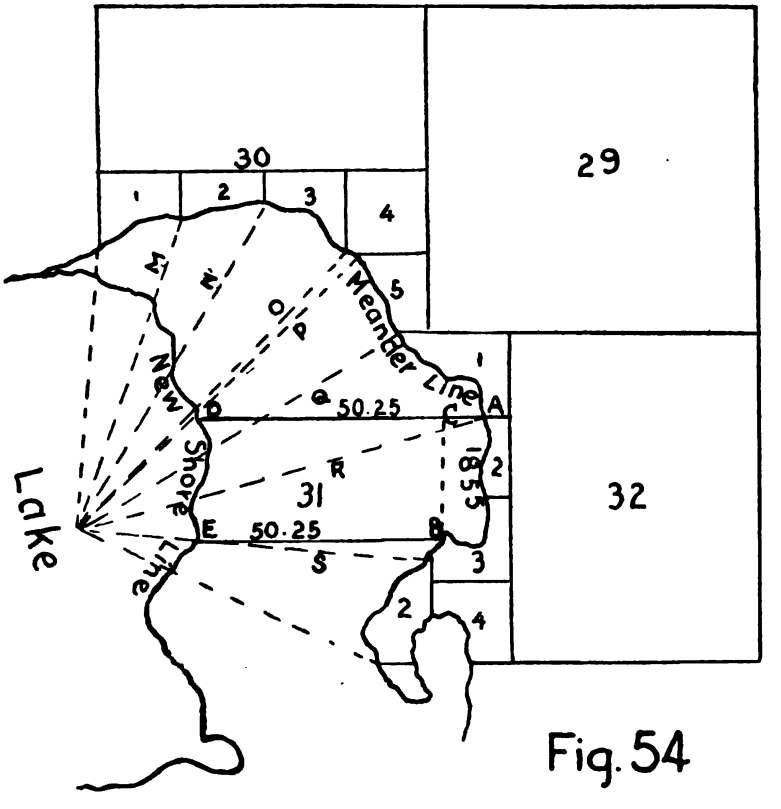


Fig. 54

owner the court should have apportioned the same among the several riparian owners according to the number of feet of the old shore owned by each. Hence the boundary lines would not, in that event, be parallel, but would converge as they were extended toward the new shore line. This rule would give each riparian owner his proportional amount of the new shore and an equitable part of the alluvium. The method pursued

by the court would cut off several riparian owners of any interest in the new shore line, which, to our mind, is contrary to equity and is not the law. We are of the opinion, however, had there been a controversy as to this particular point, in which all riparian owners were made parties, the court would have made a different division. We understand the action was one in ejectment, and the plaintiff was unable to show a good title and, therefore, failed. The court invoked the familiar rule that the plaintiff, in an action of ejectment, must recover, if at all, on the strength of his own title, and not on the weakness of his adversary. Referring to Fig. 54, line DE represents the new shore line of the lake insofar as the case was concerned. AB represents the meander line in front of lots 2 and 3. In this case partition should have been made by a measurement of the entire old shore line and the entire new shore line and then proportionately divide the new line between all of the riparian owners.[69]

This latter rule is the one followed by the Wisconsin court in Northern Pine Land Co. v. Bigelow.[70] The Massachusetts courts laid down this rule at an early date and it seems to have been quite generally followed.[71] The meander line can not be considered in determining the location of the shore in navigable waters or in determining the rights of coterminous riparian owners.[72]

In the case of Sherwin v. Bitzer, the court indulges in a lengthy dicussion of meander lines and the rights of riparian

[69]Ante § 254.

[70]Northern Pine Land Co. v. Bigelow, 84 Wis. 163, 54 N. W. 496, 21 L. R. A. 776; Thomas v. Ashland S. & I. R. &c. Co., 122 Wis. 519, 100 N. W. 903, 106 Am. St. 1000.

[71]Deerfield v. Arms, 17 Pick. (Mass.) 41; Rust v. Boston Mill Corp, 6 Pick. (Mass.) 158; Wonson v. Wonson, 14 Allen (Mass.) 71; O'Donnell v. Kelsey, 10 N. Y. 412; Blodgett & D. Lumber Co. v. Peters, 87 Mich. 498, 49 N. W. 917; Johnston v. Jones, 1 Black (U. S.) 209.

[72]Menasha Wooden-Ware Co. v. Lawson, 70 Wis. 600, 36 N. W. 412.

owners to accretion.[73] Much good law is cited but, owing to adverse interests not being represented, the court did not correctly lay down the division lines in the partition of the accretion or, what is the same thing, the land formed by a drying up of the lake in question. We deem it wise to cite some of the authorities to which reference is made by the court in that case. We find the cases sustain the rule that a meander line is not a boundary line, but one designed to point out the sinuosity of the bank or shore, as a means of ascertaining the quantity of land in the fraction which is to be paid for by the purchaser.[74] But there is an exception to this rule in cases of fraud or mistake in running the meander line. In that event the courts have sometimes held the meander line to be a boundary line.[75] And unless the case falls within the exception, the actual water front must be considered the boundary line.[76] And the ownership of the abutting lots to the water front carries with it the ownership of the land which has been uncovered by the recession of the water.[77] So too, lands formed in this way become a part of the abutting property, and may be conveyed with it or by separate deed.[78] And we find a conveyance of the original lots would carry all of the lands to the actual water front, unless the deed contains words

[73]Sherwin v. Bitzer, 97 Minn. 252, 106 N. W. 1046.

[74]Whitaker v. McBride, 197 U. S. 510, 49 L. ed. 857, 25 Sup. Ct. 530; Hardin v. Jordan, 140 U. S. 371, 36 L. ed. 428, 11 Sup. Ct. 808; Horne v. Smith, 159 U. S. 40, 40 L. ed. 68, 15 Sup. Ct. 988; Railway Co. v. Schumeier, 7 Wall. 272, 19 L. ed 74.

[75]Security Land & Exploration Co. v. Burns, 87 Minn. 97, 91 N. W. 304.

[76]Schurmeier v. Ry. Co. 10 Minn. 82, 88 Am. Dec. 59; Lamprey v. State, 52 Minn. 181, 53 N. W. 1139, 18 L. R. A. 670, 38 Am. St. 541; Olson v. Thorndike, 76 Minn. 399, 79 N. W. 399; Carr v. Moore, 119 Iowa 152, 93 N. W. 52, 97 Am. St. 292.

[77]Webber v. Axtell, 94 Minn. 375, 102 N. W. 915; Banks vs. Ogden, 2 Wall. 57, 17 L. ed. 818.

[78]De Long v. Olsen, 63 Nebr. 327, 88 N. W. 512.

of reservation.[79] And again the deed carries all of the land to the shifting water front.[80]

Again referring to Fig. 54, we would suggest that were all of the riparian proprietors, owning land along the lake in question, represented in the case and parties thereto, and the court applying the general rule in the division of the accretion or land made by the drying up of the lake, such court would very likely divide the same in the manner shown by the dotted lines marked m-n-o-p-q-r and s. In other words the court would draw lines from the intersection of the several boundaries with the old shore line to the center of the lake. This would give an equitable division of the "made land." Were the lake a long one instead of an approximately round one still another method would be adopted, a modification of the one suggested. That would call for running a line through the center of the lake approximately, the ends of such lines being within the lake depending on circumstances. The division lines would then be run to such center line. However, a better division might be had by dividing the new shore among the several proprietors in proportion to the length of the old shore line held by them severally, as suggested in the fore part of this section. To our mind this would be the better rule.[81]

§ 256. **Non-navigable lake a boundary.**—The authorities seem quite general that in cases of non-navigable lakes or ponds the riparian proprietors take to the center of the lake or pond. And it is held in Illinois under a grant of land bounded by a lake or pond, which is not tide-water and is not navigable, the grantee takes to the center of the lake or pond ratably with other riparian proprietors, if there be such; and that the pro-

[79]Illinois Cent. Ry. Co. v. Illinois, 146 U. S. 387, 36 L. ed. 108, 13 Sup. Ct. 110; Jeffris v. East Omaha Land Co. 134 U. S. 178, 10 Sup. Ct. 518, 33 L. ed. 872.

[80]Gorton v. Rice, 153 Mo. 676, 55 S. W. 241; Lamb v. Rickets, 11 Ohio 311; Kraut v. Crawford, 18 Iowa. 549, 87 Am. Dec. 414.

[81]Northern Pine Land Co. v. Bigelow, 84 Wis. 157, 54 N. W. 496, 21 L. R. A. 776.

jections of a strip or tongue of land beyond the meander line of the survey is entirely consistent with the water of the pond or lake being the natural boundary of the granted land, which would include the projections, if necessary, to reach the boundary.[82]

§ 257. **No reservation between meander line and water.**—It is the general rule that, in government surveys, there is not deemed to be any reservation between the meander line and the water. And it is the rule that where the government transfers the land adjacent to a meander line it parts with its entire interest to the water line. And it is held in Iowa that in the survey of government lands bounded on one side by water, a meander line is not a boundary line, but is made for the purpose of ascertaining the quantity of land subject to sale in the tract, and where the government plat and field-notes showed no reservation of land between the meander line and water line, the title of the patentee extends to the water.[83] So too, the same rule is sustained in other courts, and it is held in Minnesota that a patent from the United States of a surveyed fractional government subdivision, bounded on a meandered lake, and although the meander line of the survey be found not to be coincident with the shore line, the purchaser is not estopped to assert that his title extends to the lake, and beyond the meander line.[84]

§ 258. **Takes beyond meander line and quarter-line to water.**—The same rule has been applied by the Wisconsin court in an extreme case, and it is held that where the United States conveyed to the Territory of Wisconsin, "fractional section 29" in a certain township; and on the government plat of the land (to which the description in the deed referred), said fractional section along its whole west line abuts on the meander

[82]Mitchell v. Smale, 140 U. S. 406, 35 L. ed. 442, 11 Sup. Ct. 819.

[83]Ladd v. Osborne, 79 Iowa 93, 44 N. W. 235.

[84]Everson v. Waseca, 44 Minn. 247, 46 N. W. 405.

lake, (which extends west beyond what would be the west line of the section, were it a full one); and the whole fraction (as represented on the plat) is within what would be the east half of the section, if a full one. Said fractional section is divided on said plat into three lots, of which numbers 1 and 2 include the portion north of the east and west-quarter line and number 3, the portion south of it. The Territory conveyed to D. C. was the "N. E. fractional quarter of section 29" in said township, *according to the government plat*. It was held that D. C. had a right to believe that the lake was his western boundary throughout the whole length of that boundary; that the Territory clearly intended to convey all of the land it owned in said fractional section north of the east and west-quarter line; and that the deed was sufficient to carry out that intention.[85]

§ 259. **Division of docking privileges on meandered and navigable stream.**—Frequent contests arise as to the rights of riparian owners in docking privileges on a meandered and navigable stream. Such was the condition in a Wisconsin case wherein the boundary line between lots 1 and 2 of a certain section runs north to Fox river. At this point the meander line is some distance from the river. A controversy arose between the owners of the two lots as to where the boundary line between the two lots would run in its course to the "thread of the stream." The court says, "In this case the boundary line between two adjoining lots as they extend into a river, is held to be a line drawn perpendicular to the 'thread of the stream' from the point where the government line between such lots strikes the *actual* shore line (not the meander line) of the river."[86] See Fig. 55. OLP represents the govern-

[85]Shufeldt v. Spaulding, 37 Wis. 662.

[86]Menasha Wooden-Ware Co. v. Lawson, 70 Wis. 600, 36 N. W. 412; Peoria v. Central Nat. Bank, 224 Ill. 43, 79 N. E. 296, 12 L. R. A. (N. S.) 687.

ment boundary between lots 1 and 2. The meander line is represented at RS. Owner of lot 1 claimed the division of

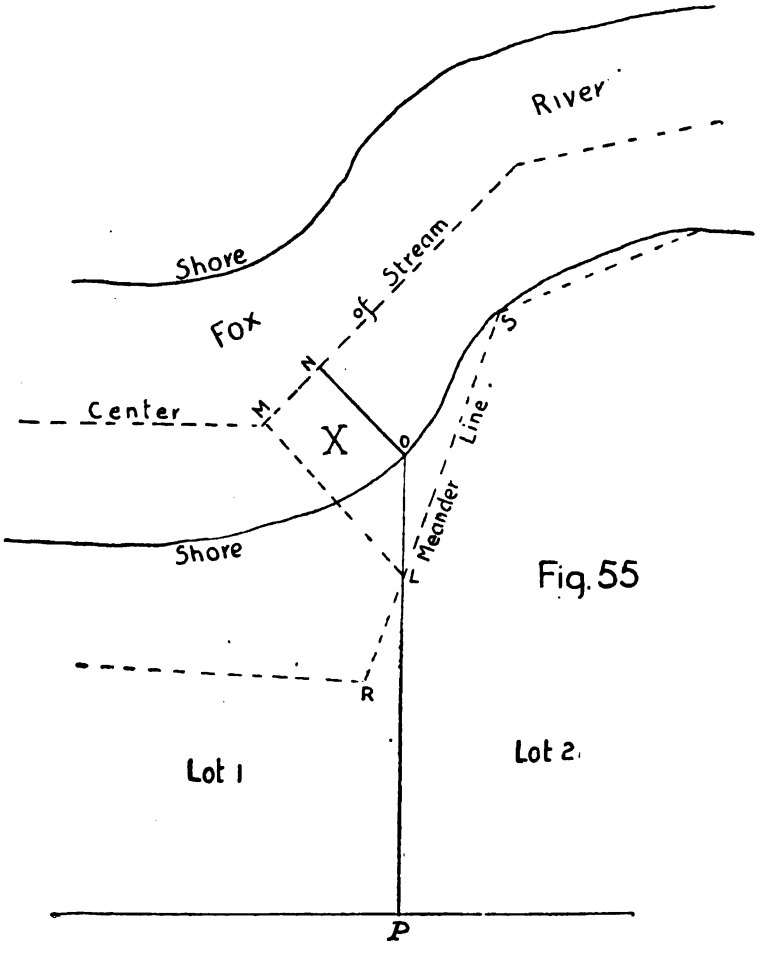


Fig. 55

dock privileges should be line ON; the owner of lot 2 claimed such division should be line ML. X represents the disputed territory. It was held the proper division line was line ON.

But see Northern Pine Land Co. v. Bigelow.[87] In the latter case the court held the boundary line to be properly fixed by a proportionate measurement of the shore line and the line of navigable water. Justice Orton dissented from the majority and contended that the division line should be fixed at right angles to the "thread of the stream," as in the Lawson case ante. But it must be remembered that the two cases are not alike. In the Bigelow case there was no "thread of the stream" as the shore line was on a bay and the court held the rule applied should be the same as for a division of accretion.[88]

§ 260. **Meaning of shore and shore line.**—Courts are frequently called upon to construe the meaning of the words "shore" or "shore line" as used in a transfer. It is said that the words, "shore" and "shore line," when used in rules for the division of accretion upon rivers, mean the margin of the river or water edge.[89] In this case the court cites approvingly the Lawson case ante. High-water mark is said to be found by ascertaining where the presence and action of water are so usual and long continued in ordinary years as to mark upon the soil of the bed of the stream or body of water a character distinct from that of the banks in respect to vegetation and the nature of the soil.[90] And we find shore defined as "Land on the margin of the sea, or a lake, or river. That space of land which is alternately covered and left dry by the rising and falling of the tide."[91]

§ 261. **Division where stream is straight.**—Not only the shape of the shore line but also the general trend of the stream must be taken into consideration in the division of shore line privileges among riparian owners. And it is said

[87]Northern Pine Land Co. v. Bigelow, 84 Wis. 157, 54 N. W. 496, 21 L. R. A. 776.

[88]Ante § 254.

[89]Peoria v. Central Nat. Bank, 224 Ill. 43, 79 N. E. 296, 12 L. R. A. (N. S.) 687.

[90]St. Louis I., M. & C. Ry. v. Ramsey, 53 Ark. 314, 13 S. W. 931, 8 L. R. A. 559, 22 Am. St. 195.

[91]Words & Phrases, "Shore."

that where the stream is straight, the water front will be bounded by lines drawn at right angles with the thread of the stream, protracted until they reach the ends of the shore line. When the stream curves the same principle applies, and the lines running from the shore would converge or separate, according as the land lay within or without the curve.[92] See

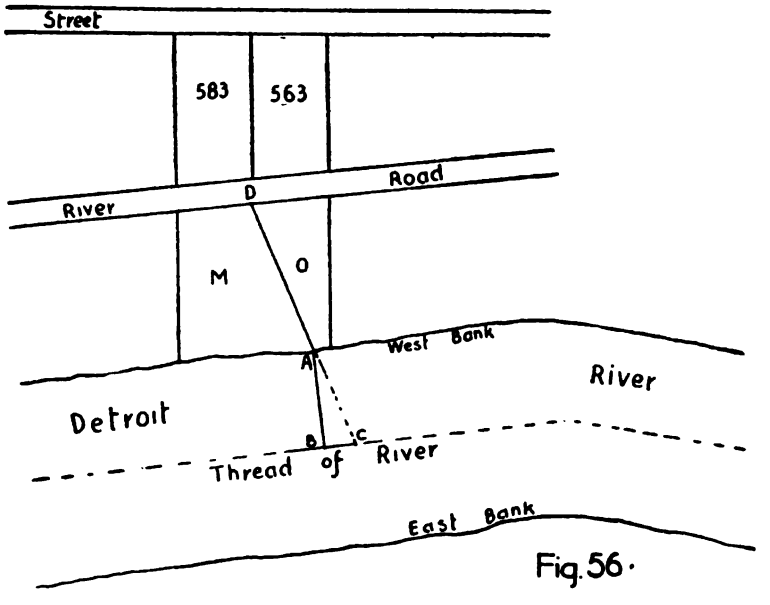


Fig. 56. Line AD is the boundary between plaintiff's and defendant's properties and is practically at right angles to the shore of the river at that point. BC is the thread of the river. AB is a line drawn at right angles to the thread of the stream. It was held that AB was the proper dividing line between plaintiff's and defendant's lands as they have rights in the bed of the river. It also fixes dock privileges. In other words the dividing line as to those privileges is determined by running a line from a point where the division line of their

[92]Clark v. Campau, 19 Mich. 325.

properties strikes the shore line to the thread of the stream and at right angles thereto.[93] And it is said that the boundary lines of water lots fronting upon a river in such a manner that their sidelines strike the shore at right angles with the middle thread of the stream, but at different angles with the shore at that point, extend into the river at right angles with the thread of the stream, without reference to the shape of the shore.[94] And the boundary between adjoining riparian owners is to be determined, by extending a line from the boundary at the shore, perpendicularly to the general course of the stream opposite that point.[95] Fig. 56.

§ 262. **Owner of bank, owner of bed of stream or inlet and of beneficial use thereof.**—It is the rule that the owner of a bank of a stream is entitled to every beneficial use of the soil under the stream or inlet, which can be exercised with a due regard to the public easement, and any trespass which interferes with such use, like an obstruction preventing the taking of ice gives him a right of action for the damage thereby occasioned.[96] This rule was applied to Muskegon lake which is separated from Lake Michigan by a narrow channel about 60 rods long and its surface rises and falls with the surface of the latter lake. But the court held it was not a part of Lake Michigan and that the general rule applied.[97] Referring to Fig. 57, the court held that the low land lying beyond the meander line, as shown therein, is a part of section 18. This is but the affirmance of the well established principle that a meander line is not the boundary line. And it is said that the rule of riparian proprietorship, upon the river Detroit, as laid down in Lorman v. Benson, ante, is applicable to Lake Muskegon; and the ownership of land bordering upon the lake carries with it the ownership of the land under the shal-

[93] Clark v. Campau, 19 Mich. 325.

[94] Bay City Gas. Co. v. Industrial Works, 28 Mich. 182.

[95] Clark v. Campau, 19 Mich. 325.

[96] Lorman v. Benson, 8 Mich. 18; Ryan v. Brown, 18 Mich. 196.

[97] Rice v. Ruddiman, 10 Mich. 125.

low waters so far out as is susceptible of beneficial private use, but subordinate to the paramount public rights of navigation, and the other public rights incident thereto.[98]

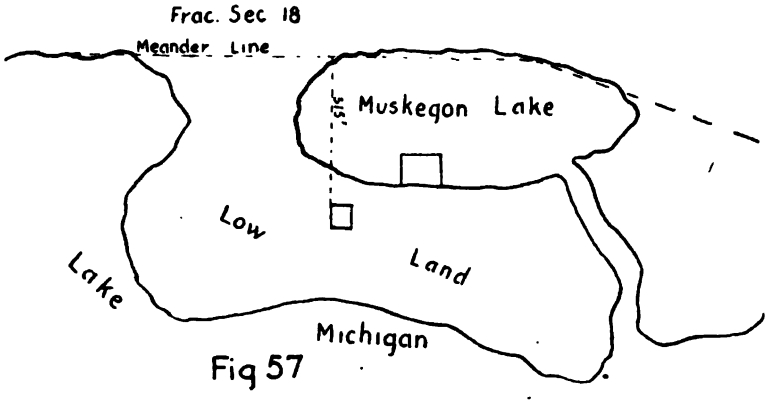


Fig 57

§ 263. **Rule for division of shore on rivers and lakes differ.**—It will be seen by an examination of the cases, that the courts have applied a different rule for the division of the rights of riparian owners to the shores of lakes and rivers. Much of the apparent confusion of the authorities can be traced to this fact. A river has a "thread of the stream" but no such term is applied to a lake, the sea or a large pond.[99] In this case the court says: "Controversies arising concerning riparian rights upon waters having no middle thread properly so-called, like the open sea, or a bay or other similar body of water, where the shore is the only tangible element of computation or measurement, have no bearing on the case of rivers." In those states where the riparian proprietor owns to the thread of navigable streams subject to the rights of the public to pass over and along said stream, it is the rule that the owner of the shore of such river owns the submerged lands connected therewith to the thread of the stream.[1] And the

[98]Rice v. Ruddiman, 10 Mich. 125.

[99]Bay City Gas Co. v. Industrial Works, 28 Mich. 182.

[1]Campau Realty Co. v. Detroit, 162 Mich. 243, 127 N. W. 365, 139 Am. St. 555.

owner of the land not only owns the submerged land but also the ice covering the surface of the water over the submerged lands and the right to trap rats thereon.[2]

§ 264. **Riparian owner entitled to island in stream.**—It is generally held in those cases where an island is found in a stream adjacent to the shore, during dry seasons, but covered in times of freshets, and which island was never surveyed by the government, that it belongs to the riparian owner.[3] And this may be the case in those states, along navigable streams, where the riparian owner does not own the bed of such streams, as will be seen by an examination of the case last cited. In that case, briefly, the facts were: Party owned lot 1 in a fractional section in the state of Minnesota, bordering on the Mississippi river. Opposite his lot at certain seasons of the year, and separated from the main shore by a slough 28 feet wide, was an island containing two and seventy-eight hundredths acres. This island was some four feet lower than the main land and was entirely covered during freshets. During low stages no water flowed in the slough separating the island from the main land but water stood in this slough in pools. At medium stages of water it flowed through the slough, making an island of the parcel; and, when at high-water, the parcel was submerged; the whole place having previous to the controversy, been laid out as a city, and the municipal authorities having graded and filled up the place to the river edge of the parcel. It was held that the riparian owner took the island. This holding would not be unusual in those states where it is uniformly held that the riparian proprietor owns to the center of the stream.[4] See Fig. 58 for an illustration of the subject of the section.

§ 265. **Riparian owner has free access to navigable part**

[2]Johnson v. Burghorn, 212 Mich. 19, 179 N. W. 225.

[3]Railway Co. v. Schurmeir, 7 Wall. (U. S.) 272, 19 L. ed. 74.

[4]Ante § 169.

of stream.—It is the universal rule, unless there is an exception or reservation in the conveyance, that the riparian owner

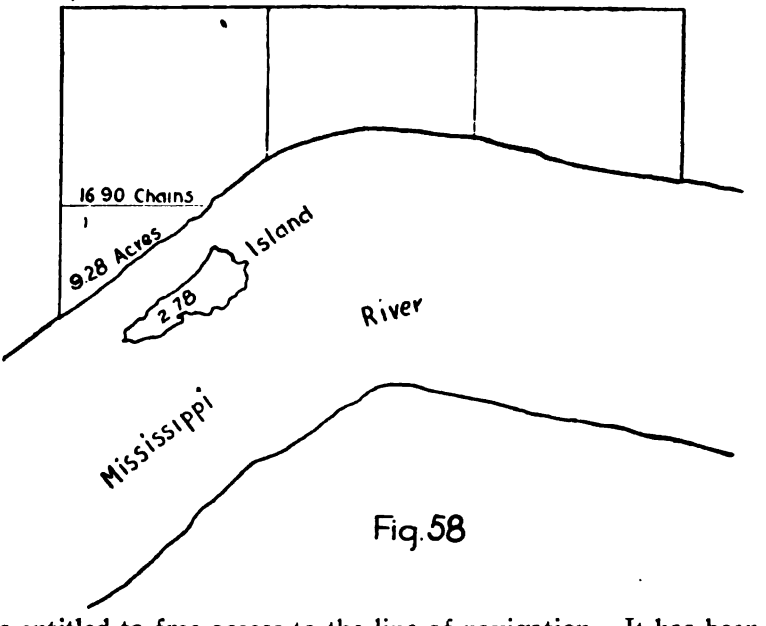


Fig. 58

is entitled to free access to the line of navigation. It has been held by the Federal Supreme Court, in a case that arose in Wisconsin, that the owner of the shore has the right to free access to the navigable part of the stream and may build docks, piers and approaches, either for use of himself or the public. He must not interfere with the public rights or obstruct navigation.[5] See Fig. 59. Yates owned lot 1 of the plat of the city of Milwaukee. He built a pier as indicated in the diagram. This pier extended to the line of navigation of the river, A-B. He used this pier privately and also in the interest of the public. It was held that he had such right and that the dock would not be abated as a nuisance.

§ 266. **Title by accretion may be lost.**—While accretion is

[5]Yates v. Milwaukee, 10 Wall. (U. S.) 497, 19 L. ed. 984.

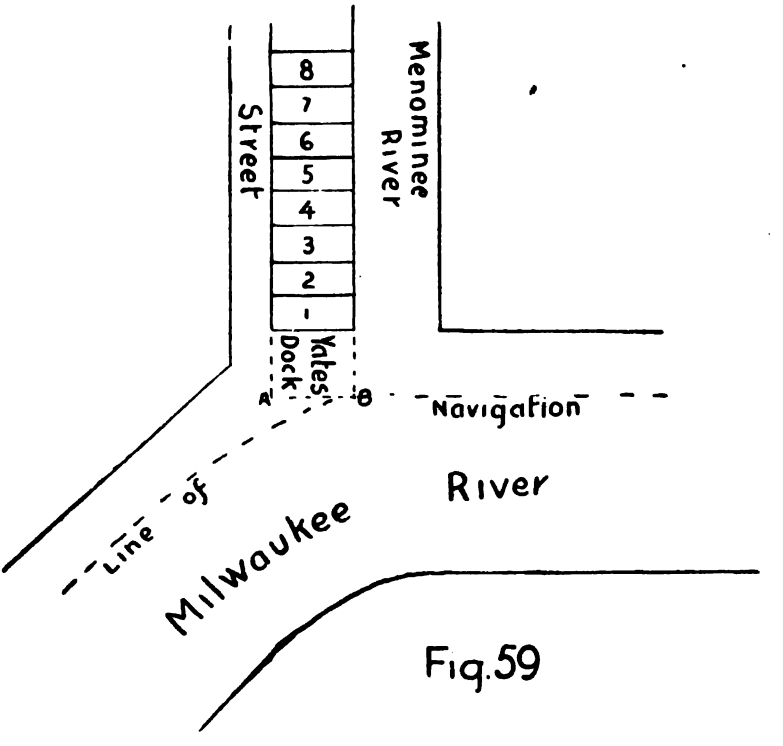


Fig. 59

the addition to a shore by slow and imperceptible means yet a riparian proprietor who has gained title to "made lands" by that means may also lose it.[6] And we find that while the title by accretion is liable to be lost by erosion or submergence, the erosion to effect that result must be accompanied by a transportation of the land beyond the owner's boundary, and it may be returned by accretion, in which case the ownership, temporarily lost, may be regained; and so, land lost by submergence, may be regained by reliction, unless the submergence has been followed by such a lapse of time as precludes the identity of the land from being established.[7]

[6]Mulry v. Norton, 100 N. Y. 424. [7]Mulry v. Norton, 100 N. Y. 424.

§ 267. **Regaining land lost by erosion or submergence.**—It is not uncommon for a riparian proprietor, who has lost land by erosion or submergence to regain it by the same means. To regain such land the growth must be slow and imperceptible and we find that, if, after the submergence, the water disappears from the land, either by its gradual retirement or the elevation of the land by natural or artificial means, the proprietorship returns to the original owner. And no lapse of time during which the submergence has continued bars the right of the owner to enter upon the land reclaimed and assert his proprietorship when the identity can be established by reasonable marks, or by situation, extent of quantity and boundary on the firm land.[8] And it has been held that if an island forms upon the land while submerged it belongs to the original owner.[9] In the latter case the facts were, briefly, that in 1865, the plaintiff's predecessors in interest received a transfer of land situated on Long Island, from the Indians; that prior to 1869, a large part of this tract was washed away and became submerged and so remained for many years; that thereafter that part which had been washed away, by slow process, became filled up and bars of sand formed within the original boundaries. It was held that the plaintiff was the owner of land so formed.

§ 268. **Division of accretion where shore line approximately straight.**—As we have seen every riparian proprietor, unless restricted in his grant, is entitled to frontage on the new shore proportional to his old shore line.[10] The shape of the shore line has much to do with the manner of the division of those rights. The surveyor and the court will consider whether the shore line be straight or curved, and if curved, whether that curve be convex or concave with reference to the body of water. It is the general rule that where the general course of the shore or river bank is approximate to a straight

[8]Mulry v. Norton, 100 N. Y. 424.
[9]Mulry v. Norton, 100 N. Y. 424.
[10]Ante § 248; Gould on Waters, (3rd ed.) 162.

line, alluvial deposits, as well as flats, are divided among the conterminous proprietors by lines perpendicular to the general

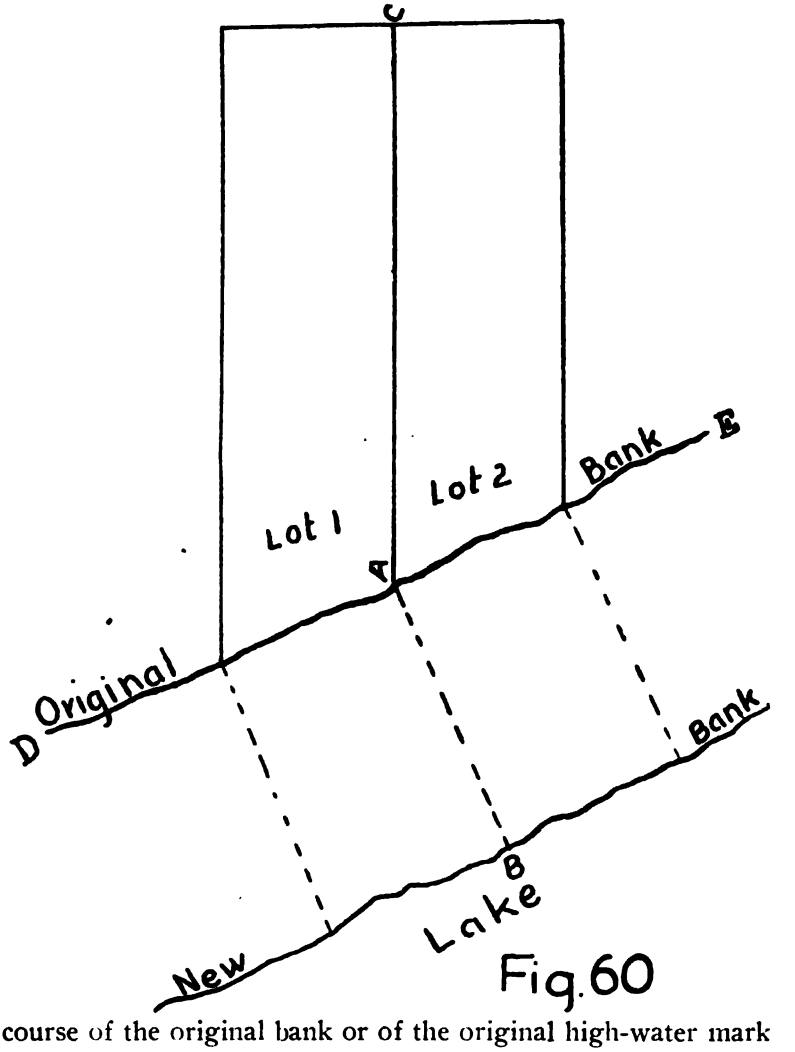


Fig. 60

course of the original bank or of the original high-water mark of the shore.[11] Referring to Fig. 60, the original bank is

[11] Gould on Waters, (3rd ed.) 163.

represented by the line D-E. A-C represents the boundary on land between lots 1 and 2. A-B would represent the division of the flats or accretion between the two lots.

§ 269. **Division where shore line curves.**—Where the shore line curves or bends a different rule prevails, naturally, and two objects are to be kept in view; namely to give to each proprietor a fair share of the land, and to secure to him con-

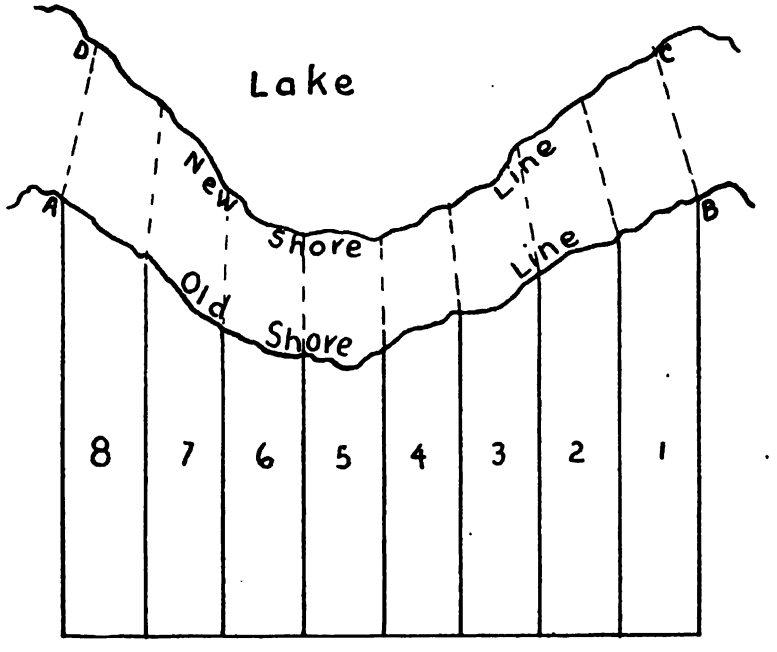


Fig. 61

venient access to the water from all parts of his land by giving him a share of the outward line proportioned to the line of high-water mark as originally owned by him. In such cases the general rule is to measure the whole extent of high-water mark or of the ancient line along the shore; to then divide the line of low-water mark, or, in the case of avulsion, the newly

formed water-line, into equal parts, corresponding in number to the feet ascertained by the above measurement; and after apportioning to such proprietor as many of these parts as he owned feet or rods on the old line, to draw lines from the original termination of the boundaries of the upland to the points of division of the newly formed line, in the case of flats, on the line of low-water mark.[12] Figs. 61 and 62. These

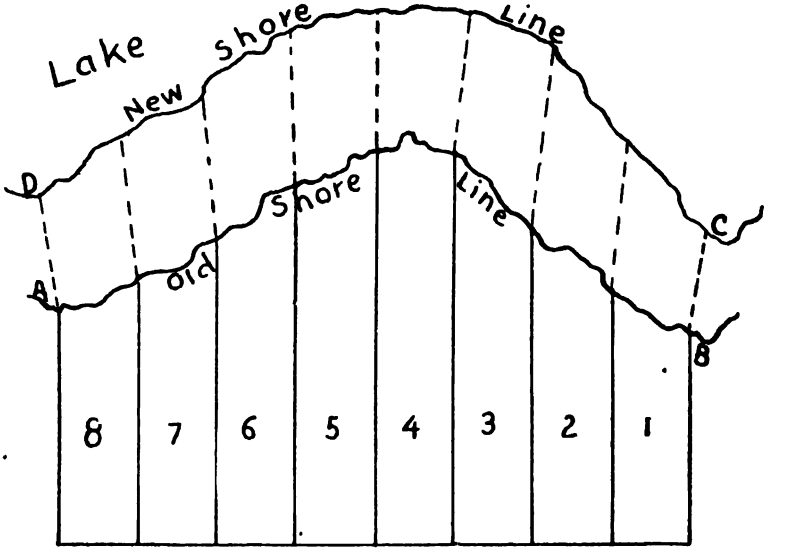


Fig 62

diagrams represent the situation in convex and concave shore lines and show the manner of the division of the flats in such cases. The method of dividing the shore line is the same. Measure A-B, the old shore line, also C-D, the new shore line, and give to each lot proportionally that part of the new shore line as such lot bore to the old shore line AB. The line of

[12]Gould on Waters, (3rd ed.) 163-4: Deerfield v. Arms, 17 Pick. (Mass.) 41.

division will converge or diverge as the new line is less or greater than the old line.

§ 270. **Division of cove privileges on land bordering on sea.**—The division of cove privileges among riparian owners of shore along the sea or a large lake is but a modification of the principle laid down in the preceding section. It has been held that every proprietor of upland bordering on the sea is entitled, under the colony ordinance of 1641, to the flats in front of his land to low-water mark, or to the distance of 100 rods, where the tide ebbs beyond that distance, of equal width throughout, with his lot at high-water mark wherever this is practicable. The division of flats among the owners of the upland bounding on a cove is to be made, wherever the form of the cove will allow of it, by running a base line across the mouth of the cove, and drawing parallel lines at right angles with this line, as a base, from the ends of the division lines of the upland to low-water mark.[13] This rule is sometimes followed where the shore line is elongated by deep indentations and sharp projections. The courts will seek to make an equitable distribution of the new shore line, the flats, the navigable water, or the accretion, as the case may be, between the owners of the uplands or original shore. Fig. 63. This diagram represents a part of the city of Boston. The line C-D was involved in the case of Gray v. Deluce, ante. The points A and B are the high-water marks of the two projections of the shore bounding Boston harbor — the so-called headlands. A-B is the base line connecting such points. Gray owned lot 1 and Deluce owned lot 2. The court held C-D, which is perpendicular to A-B, to be the boundary line between those lots, as extended over the flats or cove. The same rule would be followed in fixing the boundary lines between piers extending

[13]Gray v. Deluce, 5 Cush. (Mass.) 9; Gould on Waters, (3rd ed.) 164.

to navigable waters. But we find a slight modification of this rule in a Wisconsin case.[14]

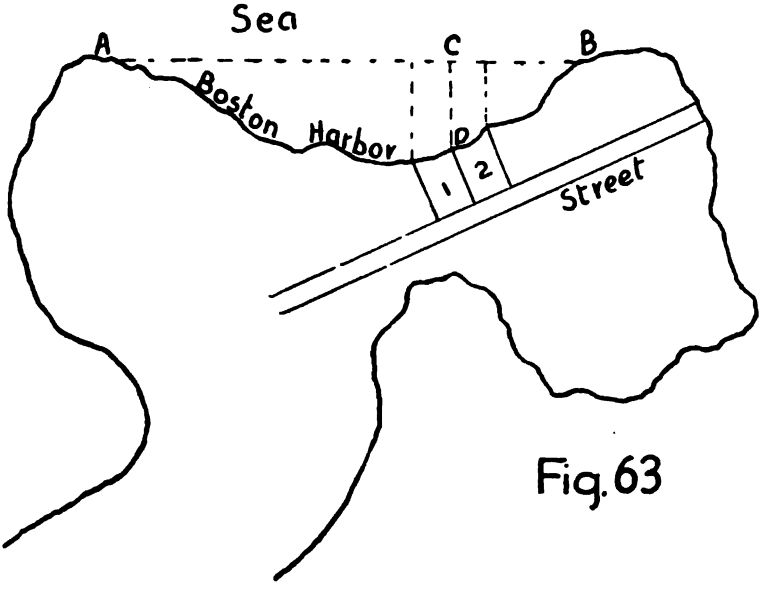


Fig. 63

§ 271. **General rule of division of accretion must give way under special circumstances.**—It will not do for the surveyor or court to proceed to follow the general rule for a division of flats or accretion under all circumstances. All of the surrounding circumstances must be considered in applying any rule of division. In an Illinois case the plaintiff owned a lot indicated on the plat. The defendant city owned, by dedication, a street indicated thereon. When the street was originally platted the surveyor marked on the river in line with the street the word, "Bridge." It was held that this was a dedication by the owner of the riparian rights to the soil under the river in a direct line with the street. The streets were

[14]Northern Pine Land Co. v. Bigelow, 84 Wis. 157, 54 N. W. 496, 21 L. R. A. 776; Ante § 254.

platted sixty-six feet wide. After the land was platted the river receded some seventy feet. A contest arose between the city and the plaintiff as to where the division line should be run as between the plaintiff and the street in giving to plaintiff his rightful proportion of the alluvium. Plaintiff claimed the line of division should run at right angles to the thread of the

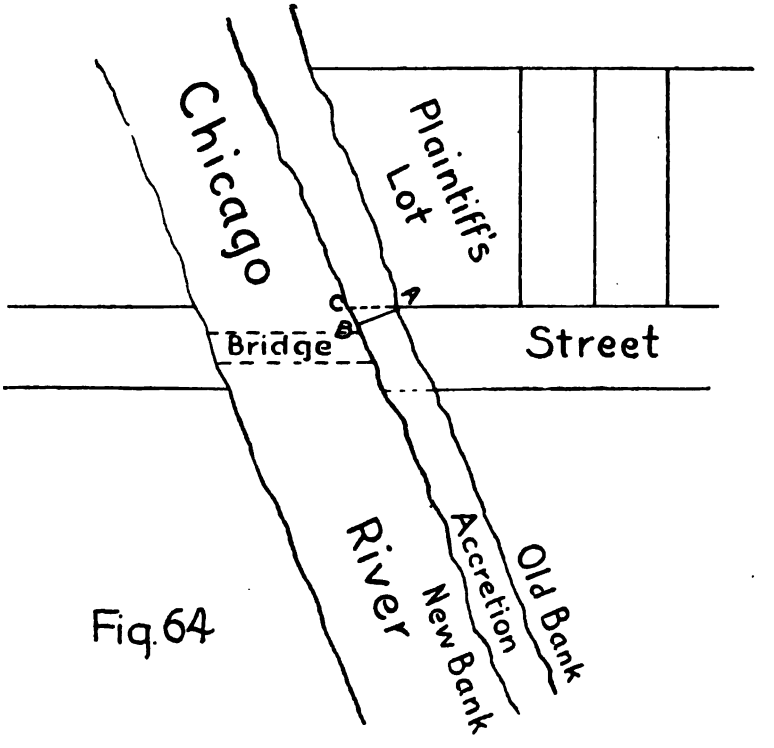


Fig. 64

stream or A-B. The city claimed, owing to the dedication by the plat, that the line should be a prolongation of the side of the street, as A-C. It was held that as to where it should be located is a question of fact and that the general rule as to boundaries in the division of flats or alluvium must give way in special circumstances, and that the line A-C should be the

division line. The fact of the dedication of the street by the proprietor of the plat was one of the moving factors in this case.[15] Fig. 64. The diagram will show the situation of the property. The ruling is doubtless correct as a matter of public necessity. The dedication was, in effect, the transfer by metes and bounds of the bed of the stream to the public and hence an individual thereafter would not be permitted to enforce the general rule as to the division of "flats" or accretion.

§ 272. **Line of division of flats to run at right angles to low-water mark.**—It has been decided in a Kentucky case that the line of division of flats adjacent to the Ohio river should run at right angles to low-water mark.[16] The same rule has been applied by the Pennsylvania court.[17] This rule is applied even though the division between the owners of the upland is oblique to the line of low-water mark. In the case cited above the line of survey was by an oblique course "to a point on the river," etc. And we find: "To ascertain the front of the riparian river at low-water mark, the course from the post (on the bank) is to be run at right angles with that line, and not to continue in the oblique directions by which it reached the post." Fig. 65. Referring to the diagram the line BG is the boundary line between the parties, B being the point referred to above as "on the river." One party claimed the division line to be a prolongation of the oblique line as BH. The other party claimed the division line of the "flats" should be BF. The court so held. It is to be observed that the general rule is to run such division line at right angles with the thread of the stream. The rule promulgated in the Pennsylvania case is a modification of that rule.

§ 273. **Lake dried up—Riparian entryman's rights.**—What are the rights in the dried up bed of a nonnavigable lake,

[15]Elgin v. Beckwith, 119 Ill. 367, 10 N. E. 558.

[16]Miller v. Hepburn, 8 Bush. (Ky.) 326.

[17]Wood v. Appal, 63 Pa. 210,

which an entryman of a timber claim, before patent issues, may lawfully assert against a third party, squatting on such dried up bed or accretion? This question was involved in a case in South Dakota. The action instituted was by the entryman, before patent, against another party who had squatted

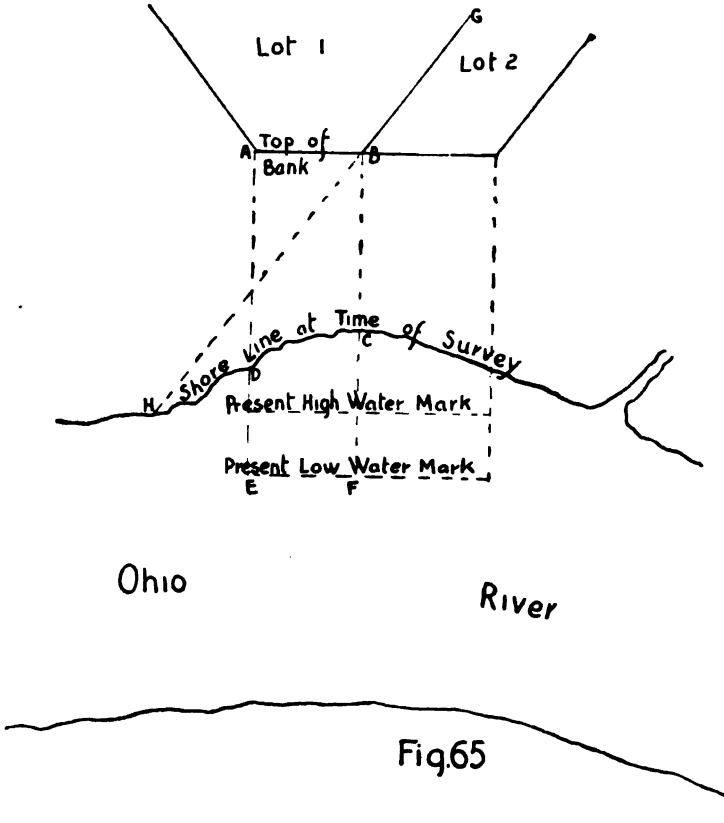


Fig. 65

on the dried up bed of a lake. The latter party, of course, had no title. Neither had the entryman received a patent of the shore line of the lake. He was, however, complying with the laws of Congress and of the land department in good faith and hence entitled to whatever rights existed to a shore

owner.[18] And it is said that, "It has been the practice of the government from its origin, disposing of the public lands, to measure the price to be paid for them by the quantity of upland granted, no charge being made for the lands under the bed of the stream or other body of water."[19] It is settled to be the course of the common law and of the latest decisions of the land department that a grantee of land contiguous to a lake or pond, not navigable, takes to the center thereof, ratably with other riparian owners, if there be such, and a timber culture entryman, who has filed upon a lot bordering upon such lake or pond, received, upon a full compliance with the law, a patent from the government which conveys to him, a fee simple title to such lot, together with any accretion or reliction to the center of the lake, occasioned by the gradual recession or drying up of the water therein, after the date of his filing.[20] The court in that case speaking through Fuller, J. say: "When land is bounded by a lake or pond, the water, equally as in the case of a river, is appurtenant to it. It constitutes one of the advantages of its situation, and a material part of its value, and enters largely into the consideration for acquiring it. Hence the presumption is that a grant of land thus bounded is intended to include the contiguous land covered by water. Besides a lake or pond, like a river, is a concrete object, a unit; and when named as a boundary the natural inference is that the middle line of it is intended,—that is the line equidistant from the land on either side."[21] Referring to Fig. 66, the diagram

[18]Application of Hoel, 13 Dec. Dep. Int. 588; Inst. of Dept. Int. to Com. Land Office, 14 Dec. Dep. Int. 119; Black's Pom. Water Rights, 36.

[19]Hardin v. Jordan, 140 U. S. 372, 35 L. ed. 428, 11 Sup. Ct. 808-838.

[20]Olson v. Huntamer, 6 S. Dak. 364, 61 N. W. 479; modified 8 S. Dak. 220, 66 N. W. 313.

[21]Olson v. Huntamer, 6 S. Dak. 482, 61 N. W. 479. Also see Mitchell v. Smale, 140 U. S. 406, 35 L. ed. 442, 11 Sup. Ct. 819; Gouverneur v. National Ice Co., 134 N. Y. 355, 31 N. E. 865.

represents a section of land. Plaintiff was in possession of lot 1 Sec. 3, twn. 104, rge. 51 west, as a timber culture entryman. At the time of the original survey by the government and at

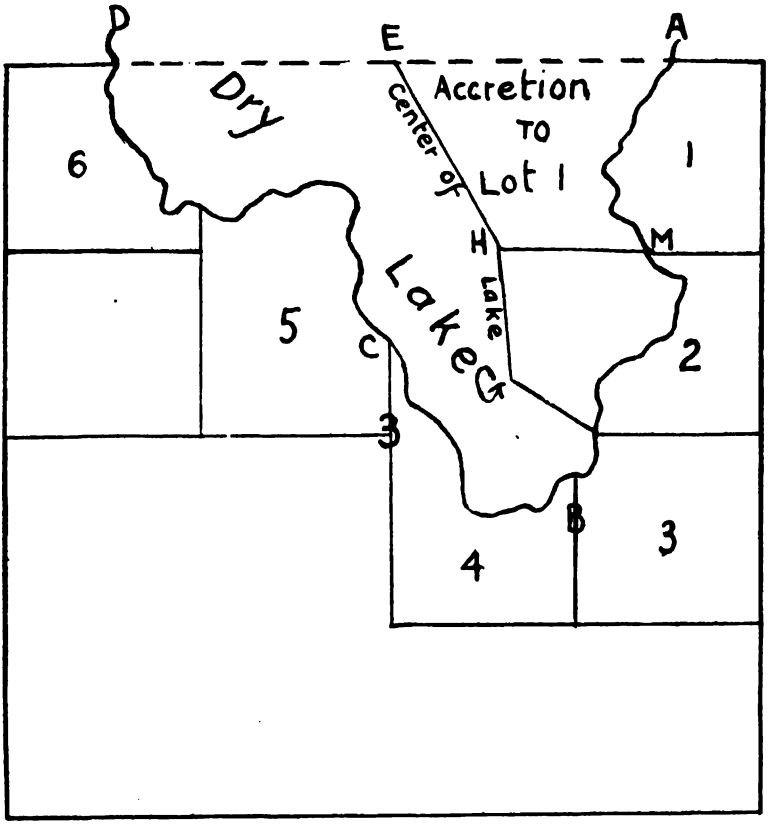


Fig. 66

the time of the entry by the plaintiff the shore of the lake and the meander line was as is represented on the diagram by A-B-C-D. Subsequently the lake gradually dried up. A controversy arose between plaintiff, the entryman of lot 1 and another with reference to that part of the dried up bed of lake

lying between the meander line and the center of the lake. It was held that the plaintiff would own to the water's edge or, if the lake was dried up, to the center line thereof. It was also held that the western boundary line of plaintiff's lands would be represented by the line E-H. And it is said that the bed of the lake, now dry, should be divided up between the several riparian owners in proportion to their original frontage and that the boundary lines between the different owners should lead to the center line of the lake.[22] Strictly speaking the court was a little careless in approving the division which was made in this case as shown by the plat. It was proper to find the center line of the lake and require the division lines to run to such center. However, the lines should converge or diverge, as the case may be, so as to give each riparian owner his equitable proportion of the dried up bed or accretion or reliction. The line H-M as held to be the south line of plaintiff's lands is not strictly in accordance with the weight of the authority. In our opinion such line should bear slightly toward the north from the point M.[23] In all such cases the court should consider the surrounding circumstances and especially consider what rights each riparian owner has to the dry lake bed even should the owners not all be represented in the litigation before the court. The court should finally order a partition thereof in such a manner as to give each owner his equitable proportion of the flat, dry lake bed, accretion or reliction.

§ 274. **Fraudulent survey and return by government officials: Meander line held to be the boundary line.**—We have seen that, generally speaking, a meander line is not a boundary line but is run for the purpose of tracing the direction of the stream for platting purposes and for computation of the area.[24] To this rule there are some exceptions. Especially is this the

[22]Olson v. Huntamer, 6 S. Dak. 364, 61 N. W. 479.

[23]Ante § 254.

[24]Ante § 255.

case where the meander line was fraudulently run by the government surveyors or where there was some mistake in the running thereof or in reporting of the notes of survey to the commissioner.[25] In this cause the court had under consideration the ownership of certain lands between the supposed

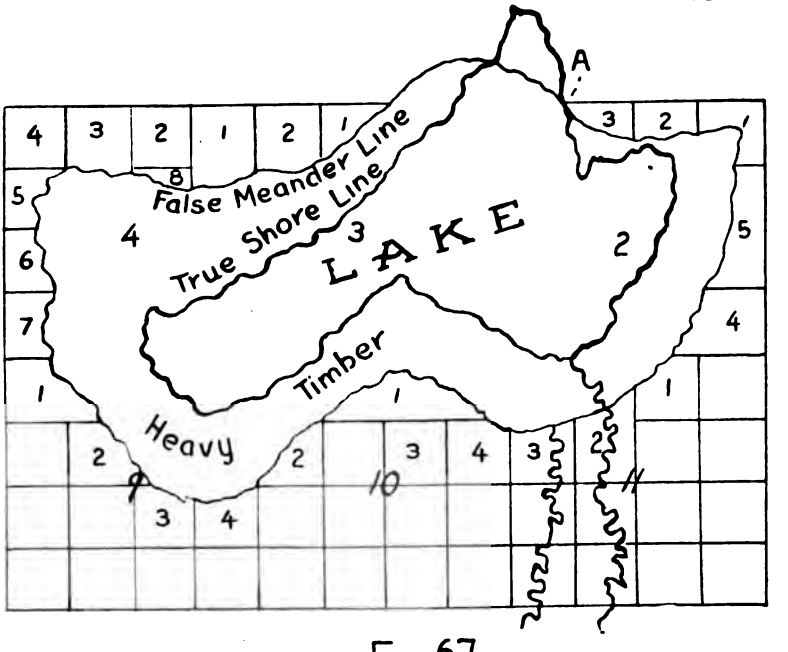


Fig 67

meander line of a lake and the actual lake. Fig. 67. Referring to the diagram, sections 2, 3, 4, 9, 10 and 11 of a certain township are represented. The government surveyors did not run any of the interior lines of the sections or establish any corners as a matter of fact. The surveyors did find the point A on the diagram and made their return to the land office and certified to the plat wherein the lake was shown as represented

[25] Security Land & Exploration Co. v. Burns, 87 Minn. 97, 91 N. W. 304.

by the light lines and the several lots as given thereon. Not a meander line was run. The plat and return were false and fraudulent. The lake never extended over the parts represented between said light lines and the heavy dark lines which mark the actual shore of the lake. The banks of the lake are high and dry. The lands surrounding the lake at the time of the original survey were covered with heavy timber. Some of the trees were many inches in diameter, thus conclusively showing that the lake never did extend over the territory between the light and heavy lines. Lots 1, 2, and 8 in section 4 were in dispute. After the state government discovered the fraud, it had the land about the lake resurveyed by the federal government and a correct return and plat made. This was many years subsequent to the first survey, which had been duly approved by the government. The land between the original meander line, as shown on the plat, adjacent to lots 1, 2 and 8, section 4, and the actual shore line were, subsequent to the second survey, sold and patented to others. The lake as originally shown contained over one thousand eight hundred acres in area, but, as a matter of fact, it contained about eight hundred acres only. It was held "that a meander line is not as a general rule a boundary line, yet the boundaries of fractional lots can not be indefinitely extended where they appear by the government plat to abut on a body of water which, in fact, never existed at substantially the place indicated on the plat. In such exceptional cases, the *supposed* meander line will, if consistent with the other calls and distances indicated on the plat, mark the limits of the survey, and be held to be the boundary line of the land it delimits."[26] The court lays stress on the fact that the return and survey made and filed in the first instance were false and fraudulent

[26]Security Land & Exploration Co. v. Burns, 87 Minn. 97, 91 N. W. 304.

and that as a matter of fact, as to the several sections of land indicated on the plat there had been no survey. To allow such a survey to stand would be to work a fraud on the government, and, if the government was bound thereby, there would be no limit. The party who originally bought the lots in question, of course, bought and paid for the number of acres shown on the government plat and such party received and rightly retained such acreage. Hence, as his lots never had any lake frontage, he was not in any way prejudiced in his rights by being held to the supposed meander line as returned.

§ 275. **Conveyance on meandered lake carries all the land.** —Contrast the decision referred to in the last section with that in Lamprey v. State.[27] In the latter case the court says: "When the United States has disposed of the land bordering on a meandered lake, by patent, without reservations or restrictions, it has nothing left to convey, and any patent thereafter issued for land forming the bed, or former bed, of the lake, is void and inoperative." Under the facts in the case cited this was entirely proper. In this case the meander line was substantially the original shore line and the survey was actually made and returned as made. Subsequently the shore of the lake receded by gradual process, the lake drying up. There was no question of fraud or falsity in the survey. In the case under consideration the court was following the general rule in all such cases. It is, therefore, important to determine whether or not the meander line was properly run and without fraud or mistake.

§ 276. **Law of state determines title to land under lake.**— It is the universal rule in this country that, after a state has been admitted into the Union, the law of that state determines the title and ownership of the beds of lakes and streams as

[27]Lamprey v. State, 52 Minn. 181, 53 N. W. 1139, 18 L. R. A. 670, 38 Am. St. 541.

between the riparian owner and the state. That is, after the United States has patented its rights to the lands lying along the shores of waters it will be held, in the absence of fraud or mistake, that the government has parted with all of its rights to such shore and the beds of such waters.[28] This, of course, must be qualified should the patent be subject to certain reservations or exceptions. The state of Minnesota, through Mitchell, Justice, holds to the rule: "When the United States has made grants without reservations or restrictions, of public lands bounded on streams or other waters, the question whether the lands forming the beds of waters belong to the state or to the owners of the riparian lands, is to be determined entirely by the law of the state in which the land lies."[29] In navigable lakes the riparian owner has title to low-water mark.[30]

§ 277. **Title to bed of navigable and nonnavigable waters.** —The ownership of the beds of lakes is of importance to the riparian proprietor. Of nonnavigable lakes the general rule is that the riparian owner owns the beds thereof to the center line. In the event the lake dries up the dry beds thereof should be divided between the several riparian proprietors in an equitable manner as we have seen.[31] The beds of navigable lakes generally belong to the state but even in such cases, should the lake dry up and the waters recede, the riparian owner would rightfully claim the right to follow the receding waters toward the center line of the lake. The proper manner of division of the new shore line in all such cases is fully discussed in this chapter. The shape of the shore line, the shape of the lake,

[28]Lamprey v. State, 52 Minn. 181, 53 N. W. 1139.

[29]Lamprey v. State, 52 Minn. 181, 53 N. W. 1139; Hardin v. Jordan, 140 U. S. 371, 35 L. ed. 428, 11 Sup. Ct. 808; Mitchell v. Smale, 140 U. S. 406, 35 L. ed. 442, 11 Sup. Ct. 819, 840.

[30]Ladd v. Osborne, 79 Iowa 93, 44 N. W. 235; Boorman v. Sunnuchs, 42 Wis. 233; Stoner v. Rice, 121 Ind. 52, 22 N. E. 968.

[31]Ante § 248.

and all of the surrounding circumstances enter into the problem of the proper division thereof and should always be carefully considered by the court or the surveyor. The Supreme Court of the state of Minnesota, speaking through Mitchell, Justice, in case of Lamprey v. State,[32] and referring to the courts of Wisconsin, say: "The courts of that state do, however, hold that the riparian proprietor has, as such, the exclusive right of access to and from the lake in front of his land, and of building his piers and wharves in aid of navigation, not interfering with the public easement where the lake is navigable; also, that he has the accretions formed upon or against his land, and those portions of the bed of the lake adjoining his land which may be uncovered by the recession of the water; there being no distinction, in respects of the rights of riparian owners, between accretion and relictions." And the same court lays down the rule: "In accordance with the rules of the common law, we, therefore, hold, that where a meandered lake is nonnavigable in fact, the patentee of land bordering on it, takes to the middle of the lake; that where the lake is navigable, in fact, its waters and bed belong to the state, in its sovereign capacity, and that the riparian patentee takes the fee only to the water's edge, but with all the rights incident to riparian ownership on navigable waters, including the right of accretions or relictions formed or produced in front of his land by the action or recession of the waters."[33] We think this is a plain statement of the weight of authority in such cases. It must be remembered that the riparian owner has the right to construct piers or docks on his water-front to navigable waters.[34] There are many variations in the rule for the division, among riparian owners, of their respective rights to accretion or reliction. Especially is this so, for the

[32]Lamprey v. State, 52 Minn. 196, 53 N. W. 1139.

[33]Lamprey v. State, 52 Minn. 198, 53 N. W. 1139.

[34]Whitney v. Detroit Lumber Co., 78 Wis. 240, 47 N. W. 425; Northern Pine Land Co. v. Bigelow, 84 Wis. 163, 54 N. W. 496.

division of the bed of a lake left dry by recession. If the lake be substantially a round one, then, doubtless, an equitable division of the accretion could be made by running lines from the boundaries of the riparian proprietor's lands toward a point in the center of the lake.[35] If the lake be a long one then a modified rule should be followed. In such case a line should be run through the center of the lake and then deflected lines should be run to such center line from the division lines of the several riparian owners.[36]

§ 278. **Division of alluvial on unnavigable river.**—As has already been suggested, the courts, in the division of alluvial rights, seek to make an equitable division thereof between all of the riparian owners of the shore. Some courts lay down the rule that the old and new shore lines should both be measured, and that the new shore line should be divided between all of the riparian owners in proportion to the part of the old shore line owned by each.[37] To us this seems equitable. However, other courts divide the new shore line by running straight lines from the point where the division line strikes the old shore line to a point in the new shore line perpendicular to that line at that point, or, as others hold, perpendicular to the thread of the stream as newly constituted. In the case cited it is said: "Where alluvial is formed on lands bordering on an unnavigable river, owned by conterminous proprietors, the rule for distribution of the accretions is to extend the side lines of each owner to the nearest river bank, giving to each the alluvial deposits in front of his own land, especially if equitable."[38] The accompanying diagram, Fig. 68, will illustrate the method of division adopted by the court. AB is the shortest distance to the new shore line from the old shore

[35]Post § 301.

[36]Post §§ 282-322.

[37]Northern Pine Land Co. v. Bigelow, 84 Wis. 163, 54 N. W. 496; ante § 254.

[38]Hubbard v. Manwell, 60 Vt. 235, 14 Atl. 693, 60 Am. St. 110, 13 Ann. Cas. 50.

line on one side of the tract and CD is the shortest distance to the new shore line from the other side line of plaintiff's lot, or, as the court says, the lines perpendicular to the new shore line at the point of intersection of the boundary with the old shore line. BDFE represents the alluvial deposit. This

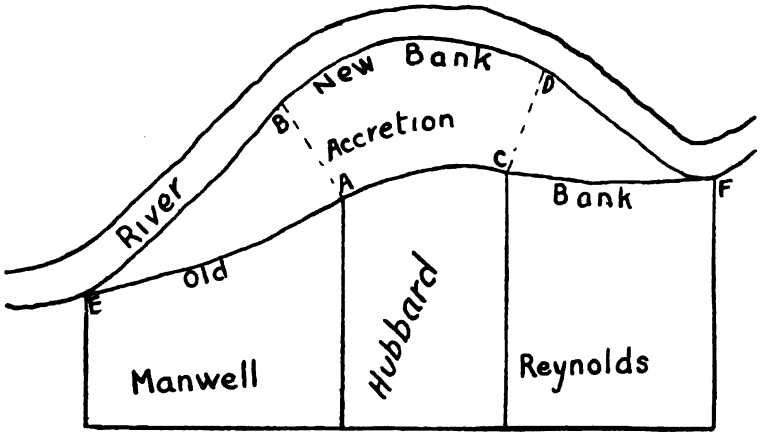


Fig. 68

method of division seems a little inequitable. It would not give to each riparian owner an equitable proportion of the new shore or of the alluvial, as will be evident.

§ 279. **Meander line and official plat.**—Where the meander line and the shore line of waters differ what is the true rule for running the division line between two riparian proprietors? We have seen in a previous section that the Wisconsin Supreme Court has laid down the rule that such division line should be run from the point on the bank of the stream to the center thereof and at right angles to the thread of the stream.[39] Fig. 55. But a different rule has been laid down in Minnesota by its courts. In that state it has been held that where the meander line of an inland meandered navigable lake is not a

[39]Ante § 259.

boundary line of the fractional lots or tracts of land abutting thereon, the title of contiguous owners extends to all land between such line and the shore of the lake, precisely as though it was the result of accretion or reliction; and the boundaries of adjoining tracts, as to land beyond the meander line, are fixed by extending their side lines on a deflected course from the intersection with the meander line toward a point in the

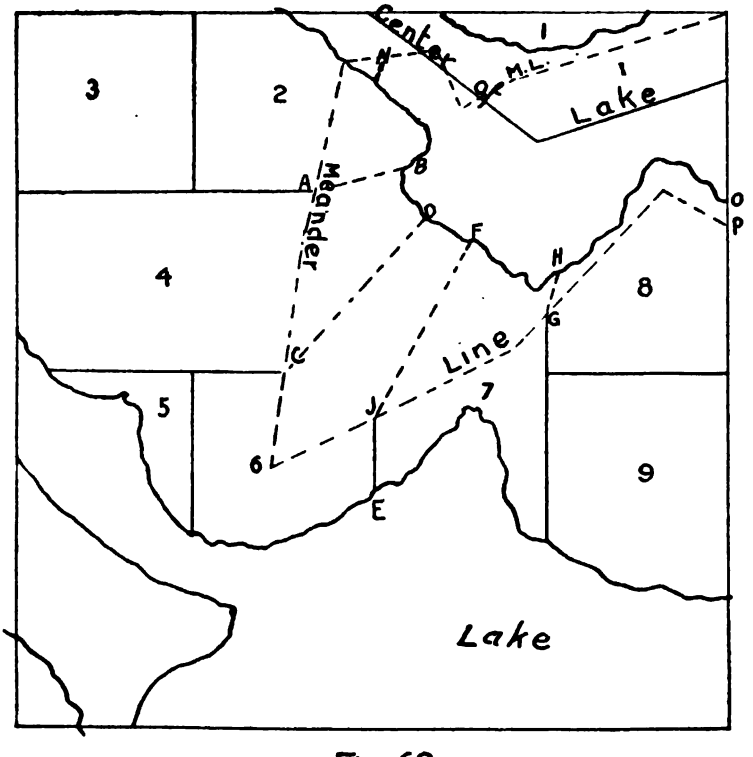


Fig. 69

center of the lake.[40] Fig. 69. As suggested above there are two lines of decisions on the points thus involved. The case

[40]Hanson v. Rice, 88 Minn. 273, 92 N. W. 982.

of Hanson v. Rice represents one line and the case of Whitney v. Detroit Lumber Co., and Menasha Wooden Ware Co. v. Lawson, represent the other views.[41] In the case of Whitney v. Detroit Lumber Co., it was held that the government lot could not be made to extend beyond the 1/8 line. The court, in that case, says: "According to the government survey and plat, fractional lot number 3, in a certain section, contained twenty-six acres in the northern portion of the N. E. 1/4 of the N. W. 1/4 of the section. The plat showed the rest of E. 1/2 of the N. W. 1/4 of the section to be a lake, the meandered line of which was the southern boundary of the fractional lot; in fact, there was no lake in the E. 1/2 of the N. W. 1/4 of the section. Held that the patent to the lot gave title only to the north forty acres of the E. 1/2."[42]

Referring to Fig. 69, the diagram represents Sec. 4-21-35. Lots represented thereon as 2, 4 and 7 in controversy. Lot 7 is owned by the plaintiff and lots 2 and 4 by the defendant. The actual shore line of the lake is represented by the lines as at N, B, D, F, H, O. The government field-notes place the meander line at N, A, J, P. Plaintiff claimed the west line of lot 7 to be EJN. Defendant claimed such line as at EJF. The court held the latter line to be the correct line of division.[43] See also Figs. 37 and 38. By a careful study of the diagrams to which reference is made and the cases cited a clear understanding will be gained.

§ 280. **Riparian rights on nonnavigable lake same as on streams.**—The same rules govern the rights of riparian owners on nonnavigable lakes or other still waters as govern such rights on streams. Hence if a meandered lake is nonnavigable, in fact, the patentee of the riparian land takes the fee to the

[41] Whitney v. Detroit Lumber Co., 78 Wis. 240, 47 N. W. 425; Menasha Wooden-Ware Co. v. Lawson, 70 Wis. 600, 36 N. W. 412.

[42] Whitney v. Detroit Lumber Co., 78 Wis. 240, 47 N. W. 425.

[43] Hanson v. Rice, 88 Minn. 273, 92 N. W. 982.

center of the lake; but if the lake is navigable, in fact, its waters and bed belong to the state, in its sovereign capacity, and the riparian patentee owns the fee only to the water line, but with all of the rights incident to riparian ownership on navigable waters, including the rights to accretions or relictions formed in front of his land by the action or recession of the waters.[44] This is a plain statement of the great weight of authority. Should a navigable lake dry up the riparian proprietors, doubtless, would follow the water lines as the waters receded and the rule for a division thereof between the several riparian proprietors would be the same as for the division of the beds of nonnavigable lakes or ponds.

§ 281. **Patent of lake shore carries all of the land.**—It is the universal rule, in the absence of fraud or mistake, that when the United States has disposed of the lands bordering on a meandered lake, by patent, without reservation or restriction, it has nothing which it can convey, and any patent thereafter issued for land forming the bed of the lake, or former bed, is void and inoperative.[45] Of course, it must be understood that this is the rule in the absence of fraud or mistake in making the original survey and running the meander lines. Such fraud or mistake being shown, the government may subsequently convey the land lying between the meander line, as run, and the actual lake shore.[46] As will be seen by a former section the Wisconsin courts have laid down the rule that the grantee taking from the government a patent in such cases will be permitted to follow the shore line or toward the shore line until he reaches the next regular subdivisional line of the section.[47]

[44]Lamprey v. State, 52 Minn. 182, 53 N. W. 1139.

[45]Lamprey v. State, 52 Minn. 182, 53 N. W. 1139.

[46]Security Land & Exploration Co. v. Burns, 87 Minn. 97, 91 N. W. 304.

[47]Whitney v. Detroit Lumber Co., 78 Wis. 240, 47 N. W. 425; ante § 279.

§ 282. **Division of rights of accretion among riparian owners.**—As we have seen in this chapter various rules have been laid down by the different courts for the division of accretion among riparian owners under varied circumstances. It is the rule, as we have stated, that riparian owners are entitled to all accretions made, to the land granted, either by the retreating of the waters from their former limits; or by the slow and secret deposit of sand or other substance.[48] And the owners of the shore line are entitled to the ice formed on those waters adjacent to the shore owned by them respectively. The division of this ice among the several owners of the shore line raises a question similar to the division of the dried up bed of a lake or stream. Unless the contrary appears a grant of land bounded by a water course conveys riparian rights and the title of the riparian owner extends to the middle line of the lake or stream.[49] The proprietor of the shore owns to the thread or center line of the waters and it is said in a Michigan case side lines are to be governed by the course of the stream, and the submerged lands by lines drawn at right angles with the central thread thereof, rather than at right angles with the shore line at the point of departure. In the case last cited the court criticises the decision of the same court in the case of Clute v. Fisher.[50] But on the whole each case must be decided on its own merits and the court must consider all of the circumstances and then divide the rights equitably between all of the owners, applying the principles well grounded in the decisions of the several jurisdictions.[51] Referring to Fig. 70, plaintiff was the owner of tract ABC and the defendant was the owner of tract EFGRP. The controversy was as to what part of the

[48]Hagan v. Campbell, 8 Port. (Ala.) 9, 33 Am. Dec. 267.

[49]Grand Rapids Ice &c. Co. v. South Grand Rapids Ice &c. Co., 102 Mich. 227, 60 N. W. 681, 47 Am. St. 516.

[50]Clute v. Fisher, 65 Mich. 48, 31 N. W. 614.

[51]Grand Rapids Ice &c. Co. v. South Grand Rapids Ice &c. Co., 102 Mich. 227, 60 N. W. 681, 47 Am. St. 516.

ice of the lake the respective parties had a right to cut. It was held that the plaintiff's riparian rights were bounded by the lines ALIJOC and the defendant's rights were bounded by the lines PMINR. The lines AL, CQ, MP, NR are sup-

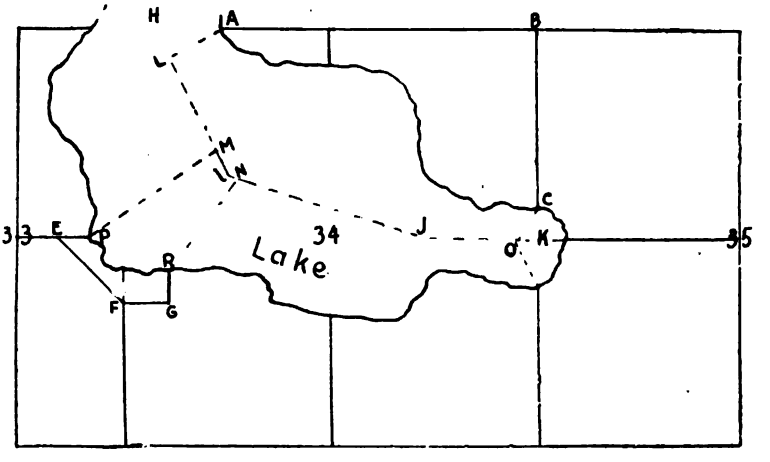


Fig. 70

posed to be perpendicular to the center line of the lake. We believe this doctrine is the true one and is sustained by the great weight of authority. As applied generally the case of Clute v. Fisher does not dispute this proposition but appears to lay down a different rule in that particular case for the reason that "the pond or lake is almost entirely within two sections," and the court holds that the subdivisional lines of the section should be prolonged into the lake in making the division of the rights of the parties. This proposition deserves the criticism of the later decisions of the court as found in a more recent decision.[52]

[52]Grand Rapids Ice &c. Co. v. South Grand Rapids Ice &c. Co., 102 Mich. 227, 60 N. W. 681, 47 Am. St. 516.

§ 283. **Meander line run as near water as possible.**—Sometimes it is a nice question as to whether certain alluvium belongs to the government or to some one of its grantees. The facts and circumstances surrounding the original survey and the location of the meander line; also the reading of the description in the patent and the construction of such description are of prime importance. It has been held by the Supreme Court of Louisiana that, "Where it is shown that the boundary lines of the land claimed by one holding under a confirmation by the United States and a survey made by a government surveyor, were run as near as possible to a bar, the whole of which was subject to be overflowed at high-water mark, and the greater part of it to an annual overflow, so as to include all of the high land susceptible of ownership, the proprietor will be entitled to the alluvium, subsequently formed on the bar."[53] But still any separation of the claimant's land from the alluvium by the lands of another, however narrow the intervening strip, or whatever the size of the claimant's land, precludes the claimant from the accumulated alluvium.[54] In the latter case the boundary description did not mention the river but was fixed by metes and bounds, monuments and courses and distances and there was some fourteen acres of land between the claimant's land and the river. The reason for the rule is clear. The claimant was not a riparian owner and had no rights in that regard.

§ 284. **Where water line the boundary but shifts.**—Where the water line is made the boundary of a tract it so remains no matter how much it may shift. And the Supreme Court of the United States has said that, "Where the water line is the boundary of a given lot, that line, no matter how it shifts, remains the boundary; and a deed describing the lot by its number conveys the land up to such shifting water line; so that in the view of accretion, the water line, if named as the

[53]Stephenson v. Goff, 10 Rob. (La.) 99, 43 Am. Dec. 171.

[54]Sweringen v. St. Louis, 151 Mo. 348, 52 S. W. 346; post § 501.

boundary, continues to be the boundary, and a deed of the lot carries all the land up to the water line."[55] The facts in the case, briefly stated, are: A fractional section of land on the left bank of the Missouri river, in Iowa, was surveyed by United States surveyors in 1851, and lot 4 therein was formed, and so designated on the plat filed, and as containing thirty-seven and twenty-four hundredths acres, the north boundary of it being on the Missouri river. In 1853, the lot was entered and paid for and patent issued. Afterwards by ten different deeds the land was successively conveyed as "lot 4" down to 1888. About 1853, new land commenced to form against the north line, and continued to form thereon until 1870, so that more than forty acres had been formed by accretion by natural causes and imperceptible degrees within the lines running north and south to the east and west sides of the lot and the course of the river ran far north of the original meander line. The defendant claimed to own a part of the new land by deed from one who had entered upon it. The plaintiff filed a bill to establish his title to lot 4. It was held that the land was alluvium, as the time of formation covered a period of about twenty years. Held also that plaintiff had title to the alluvium. The court cited Banks v. Ogden.[56] And it quoted approvingly therefrom as follows: "By some the rule has been vindicated on the principle of natural justice, that he who sustains the burden of losses and repairs, imposed by the contiguity of waters, ought to receive whatever benefits they may bring by accretion; by others it is derived from the principle of public policy, that it is the right of the community that all land sold have an owner, and most convenient that insensible additions to the shore should follow the title to the shore itself."[57]

[55]Jefferis v. East Omaha Land Co., 134 U. S. 178, 33 L. ed. 872, 10 Sup. Ct. 518.

[56]Banks v. Ogden, 2 Wall. (U. S.) 57, 17 L. ed. 818.

[57]Jeffris v. East Omaha Land Co., 134 U. S. 189, 33 L. ed. 872, 10 Sup. Ct. 518.

§ 285. **To entitle party to alluvium, water must form boundary.**—As already noted to entitle a party to alluvium of a stream or body of water his boundary must be marked by that body of water. This is fundamental.[58] In the latter case the court says: "To entitle a party to claim the right to alluvium formation, or land gained from a lake by alluvium, the lake must form a boundary of his land. If any land lies between his boundary line and the lake, he can not claim such formation." And it is the rule that a party seeking to transfer alluvium can not convey title, no matter how strong the language used, if he has not title to the edge of the body of water. The court in its opinion in the last case cited above says: "Where the fee in the shore of a water course does not belong to the grantor, no words of description in a grant will convey to the center of it, and where the United States has passed its title to land bordering on and covered by a lake, a subsequent grant of adjoining land, purporting to bound it on the lake, will not invest the grantee of the second grant with the right to take to the center of the lake, and such grantee will have no right to alluvial formation therein." If the terms of the grant do not exclude the right to alluvial formation. the grant will carry all such rights, where the land is bounded by water.[59] And it is said in that case: "Grants of land bordering on a river carry the exclusive right and title of grantee to the center of the stream, unless the terms of the grant clearly denote an intention to stop at the water's edge." The same rule applies to city lots platted on the banks of a stream or body of water, where the plat showed the lots by an irregular line representing the water's edge.[60] Practically this must be so, of necessity.

[58]Bristol v. Carroll, 95 Ill. 84.

[59]Davenport &c. Railway & Terminal Co. v. Johnson, 188 Ill. 472, 59 N. E. 497.

[60]Davenport &c. Railway & Terminal Co. v. Johnson, 188 Ill. 472, 59 N. E. 497.

§ 286. **Doctrine of accretion applies to states and nations.** —The doctrine of accretion applies to states and nations as well as to individuals, unless taken away or modified by treaties or stipulations. It applies to both navigable and nonnavigable lakes and streams.[61] It is said in the latter case that: "The principle of accretion and alluvium applies to navigable and nonnavigable streams. The doctrine, in the absence of stipulations otherwise, applies between states and nations." This doctrine is variously modified by the courts. It applies to large rivers like the Mississippi and Missouri. It likewise applies to the Great Lakes and the ocean, subject, of course, to the public right of navigation and improvement.[62] In the last case cited it is said: "Our conclusions are that, notwithstanding the rapidity of the changes in the course of the channel, and the washing from the one side and on to the other, the law of accretion controls on the Missouri river, as elsewhere, and that not only in respect to the rights of the individual land owners, but also in respect to the boundaries between states. The boundary, therefore, between Iowa and Nebraska is a varying line, so far as affected by these changes of diminution and accretion in the mere washing of the stream."[63] In the latter case the United States Supreme Court lay down the rule with reference to accretion as follows: "Though the witnesses may see, from time to time, that progress has been made, they could not perceive it while the progress was going on."

§ 287. **Local laws generally determine rights of accretion.**—It is the general rule that rights to accretion are governed by the laws of the state where the land lies and not by the laws of the federal government. It was said by Adams, C. J. in King v. St. Louis, that, "I may incidentally add that

[61]Denny v. Cotton, 3 Tex. Civ. App. 634, 22 S. W. 122.

[62]Nebraska v. Iowa, 143 U. S. 359, 36 L. ed. 186, 12 Sup. Ct. 396.

[63]St. Clair v. Lovingston, 23 Wall. (U. S.) 46, 23 L. ed. 59.

the general doctrine invoked by defendants that local laws must determine the riparian rights of owners of real estate bounded on navigable rivers is subject in all cases to a consideration of the primary right of the United States in navigable waters for the purposes of commerce."[64] In the latter case the court cites a case from the Supreme Court of the United States where the principle is upheld.[65] The suggestion therein is found in many of the reported cases and, of course, is sound on principle. This does not mean that a riparian owner would not be permitted to build docks to navigable water. It is fundamental that he may build such docks and that the law of accretion applies in the division of dock privileges.[66]

§ 288. **Public or private road may modify rule.**—Where a public highway lies between the land to which it is claimed accretion attaches and the body of water, such land will not carry the right of accretion but it will rest in the public. However, if such way is a private way maintained by the owner of such land and worked by him at his own expense solely, the right to accretion would belong to such claimant.[67] In this case the court says: "A street or towpath or passage way or other open space permanently established for public use between the river and the most eastern row of lots or blocks in the former town of St. Louis, when it was first laid out, or established, would prevent the owners of such lots or blocks from being riparian proprietors of the land between such lots or blocks and the river. But this will not be true of a passage way or towpath kept up at the risk and charge of the proprietor of the lots, and following the changes of the river as it receded or encroached, and if the enclosure of the proprietor was advanced or set in with such recession or encroachment."

[64]King v. St. Louis, 98 Fed. 641.

[65]Gibson v. United States, 166 U. S. 271, 41 L. ed. 996, 17 Sup. Ct. 578.

[66]Northern Pine Land Co. v. Bigelow, 84 Wis. 163, 54 N. W. 496.

[67]St. Louis Public Schools v. Risley, 10 Wall. (U. S.) 91, 19 L. ed. 850.

And it was said in a Louisiana case that: "The vendee of the riparious estate acquires a qualified property, in the banks of the river, and consequently the batture which may, thereafter, arise before the estate, and an intervening highway does not prevent this, when the owner of the estate is bound to repair it, and the soil is at his risk."[68] So too, where the original plat of a tract of land was bounded by a lake and the shore of the lake, at the time the land was platted and surveyed, passed diagonally across one of the streets. It was held that the owner of one of the blocks so platted and bordering on the street through which the shore line ran would have no rights to the bed of the lake left bare by the recession of the waters of the lake.[69] In this case the facts were substantially that a party by the name of Kinsey originally owned a block of land adjoining Lake Michigan just north of Chicago. This was in 1834. He had the land platted into lots and the plan recorded. The plan as recorded was bounded on the east side by Lake Michigan. See Fig. 71. The shore line of such lake at that time was several hundred feet inland. It thereafter receded. In 1834, K sold block 54 to O. At the time of sale the shore line of the lake passed diagonally through the street east of and adjacent to said block. In 1844, the lake began to recede and the shore line at time of the suit is indicated by the line m-n. O claimed the tract marked A A, as an accretion to his block. K never conveyed any part of his rights in the bed of the lake east of the old shore line. It was held that O had no rights to the lands left dry by the recession of the waters of the lake marked on the diagram "A" "A." Doubtless the ruling would have been different had the old shore bounded the block sold O. In that event O could have followed the receding waters to the new shore line. The court urged that the street in front of O's land was a three cornered strip and

[68]Morgan v. Livingston, 6 Mart. (O. S.) (La.) 19.

[69]Banks v. Ogden, 2 Wall. (U. S.) 57, 17 L. ed. 818.

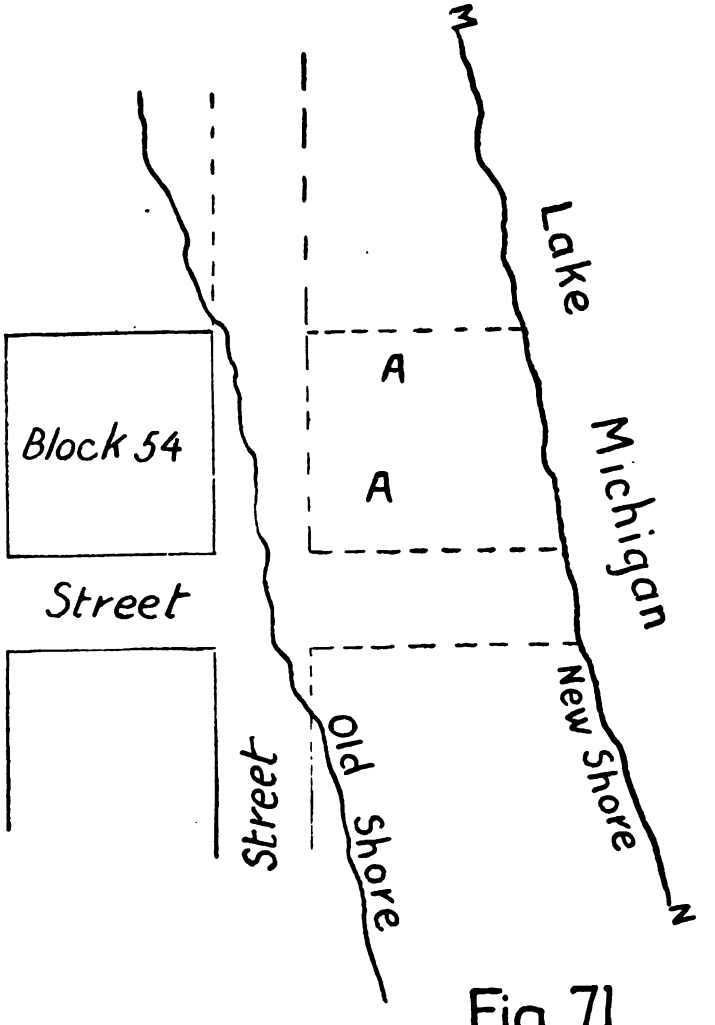


Fig. 71

that O took to the center of such strip and K retained title to the center of such strip from the east.

§ 289. **Accumulation on shore or filling up from bottom.**— Where the accumulation is to the shores of either side of a

narrow stream or slough the riparian owners on opposite sides of such stream take the accretion attaching to their respective shores and the boundary line will be the place where such accumulations meet. But if such stream or slough be filled up by an accumulation on the bottom thereof the parties will take to the thread of such stream or center line thereof.[70] It was said in the case last cited that: "It must follow that if the shore line of two bodies of land, divided by a water course, receive accretions until they come together, the line of contact

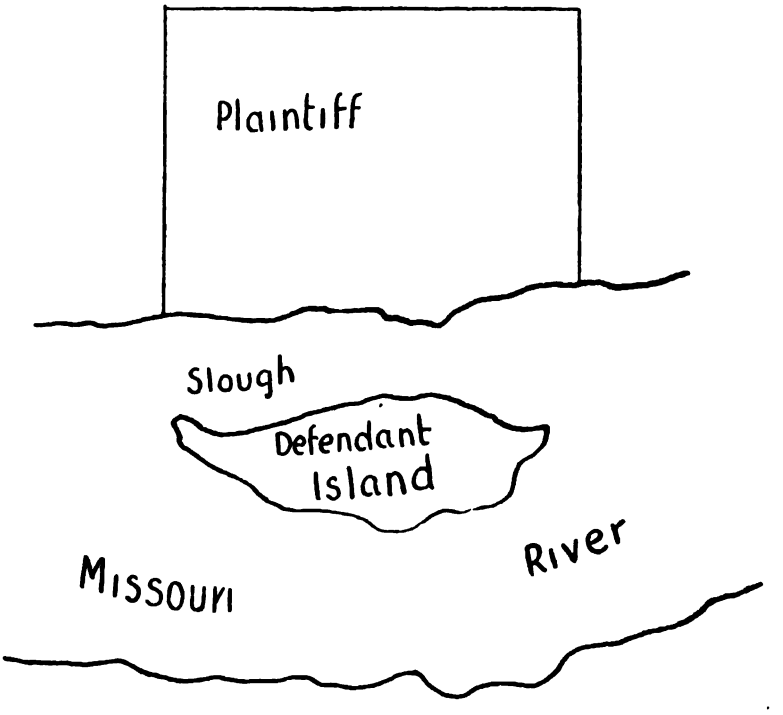


Fig. 72

will be the division line. If, however, the slough gradually filled up, as the waters receded therefrom, the same principle

[70]Buse v. Russell, 86 Mo. 214.

is applied, and the land belongs to the riparian owner from whose shore the water receded, and for this purpose it makes no difference whether the water was navigable in the common-law sense, or the general acceptation of the expression, or was a nonnavigable stream." See Fig. 72. Referring to the diagram one of the parties to the action in Buse v. Russell owned land along the shore of an island and the other owned land opposite thereto across the narrow slough on the main shore. This narrow slough or stream filled up and the principle herein enunciated was applied. See also Benson v. Morrow.[71]

§ 290. **Batture—Shoals—Shallows.**—The word "batture" will frequently be found in the reports of states in which settlements by the French were made in an early day. This term is applied to shoals or shallows. The term "batture" is defined as, "An elevation in the bed of a river under the surface of the water; but it is sometimes used to signify the same elevation when it has risen above the surface."[72] And it is said that "batture is applied, principally, to certain portions of the bed of the Mississippi river which are left dry when the water is low, and are covered again, either in whole or in part, by the annual swell."[73] By some the term seems to be used in the sense of accretion but it can hardly be so applied properly. Where a stream is filled up by the accumulation on its bed such accumulation is divided between the owners on opposite sides of the stream by a line following the thread of the stream. Whereas, if the accumulation be to the bank, the accumulation to any particular bank will go to that bank as an accretion.[74] Hence, as it will be seen, the rule for the division of "batture" differs materially from that relative to the division of accretion. This should be borne in mind in a partition thereof

[71]Benson v. Morrow, 61 Mo. 345.

[72]Bouvier Law Dict.

[73]Morgan v. Livingston, 6 Mart. (La.) 19; Leonard v. Baton Rouge, 39 La. Ann. 275, 4 So. 241.

[74]Benson v. Morrow, 61 Mo. 345; Buse v. Russell, 86 Mo. 214.

among riparian owners on opposite sides of a stream or slough.

§ 291. **Loss by accretion or submergence.**—It is the rule that what a proprietor may gain by accretion or reliction he may lose by erosion or submergence.[75] If the gain by accretion is gradually worn away and carried to another bank the proprietor can not follow it but it becomes attached to the bank owned by another and becomes his land. In the case of Mulvey v. Norton, the court of appeal of New York has said: "Increase by imperceptible degrees makes accretion and it belongs to riparian owners. Such title is liable to be lost by erosion or submergence; the erosion to affect that result must be accomplished by a transportation of the land beyond the owner's boundary, and it may be returned by aecretion, in which case the ownership, temporarily lost, may be regained; and so land lost by submergence may be regained by reliction, unless the submergence has been followed by such a lapse of time as precludes the identity of the land from being established. If, after submergence, the water disappears from the land, either by its gradual retirement or the elevation of the land by natural or artificial means, the proprietorship returns to the original owner. If an island forms upon the land originally submerged it belongs to the original owner." This is perhaps about as good a statement of the law as can be found.

§ 292. **Strip of land between bank and meander line.**—Whether a strip of land between a river and the meander line is an accretion may depend on the intention of the government in leaving such strip. The surrounding facts and circumstances may tend to establish such intent. Ordinarily the meander line follows the windings of the stream and, if the government plan so indicates and there has been no fraud or mistake, the owner of such land will have riparian rights. The ques-

[75]Mulry v. Norton, 100 N. Y. 424, 3 N. E. 581, 53 Am. Rep. 206.

tion whether or not the meander line follows the bank of the stream is a question of fact to be determined by evidence aliunde.[76] But it is said that "Where there is a strip of land between the bank of the river and the meander line, an entry of government land bounded by the meander line will not include such strip."[77] And the rule is that where the boundary of a grant from the government is made to correspond with the meander line or in other words where the meander line is a boundary line the patentee can not claim beyond such meander. And it is said in the case last cited, "Where lands had formerly extended to the meander line, and the testimony showed that there had been a change in the channel of the river of about three-fourths of a mile, but no accretion to the plaintiff's land, held, that the boundaries of his land did not extend to the new channel, nor beyond the meander line."[78] This case was before the Supreme Court of Nebraska again.[79] By a reference to the report thereof it will be seen that the government subsequently surveyed and sold the land between the meander line and the river. Hence, the government must have determined that the meander line in that instance was a boundary line and under no circumstances could the land between the bank and such meander line be an accretion. In connection with this section we suggest that the reader examine the case of Security Land, &c., Co. v. Burns.[80]

§ 293. **Boundary line between states is center line of main channel.**—Where a stream marks the boundary line between two states it is the rule that the center line of the main channel of such stream is the boundary line between such states.[81]

[76]Bissell v. Fletcher, 19 Nebr. 725, 28 N. W. 303.

[77]Bissell v. Fletcher, 19 Nebr. 725, 28 N. W. 303.

[78]Bissell v. Fletcher, 19 Nebr. 725, 28 N. W. 303.

[79]Bissell v. Fletcher, 27 Nebr. 582, 43 N. W. 350.

[80]Security Land & Exploration Co. v. Burns, 87 Minn. 97, 91 N. W. 304, ante § 274.

[81]Franzini v. Layland, 120 Wis. 72, 97 N. W. 499.

And it has been held that the boundary line between the states of Wisconsin and Minnesota is the principal navigable channel of the Mississippi river and such boundary line need not necessarily be in the middle of the river but may be very near one side of the river at places and very near the other side at other points. It is evident that such line is a changing line with reference to the middle of the stream. That is, it follows the main channel of the river.[82] And it is held that in determining the boundary lines in such cases the term Mississippi river means the broad expanse of waters; and the numerous bayous, though navigable, are not included therein.[83] And the long acquiescence of a certain boundary line between two states by such states may be conclusive on such states as to its location.[84] And in the state of Wisconsin private parties owning land along such stream own to the center of the main channel thereof subject, of course, to the public interests.[85]

§ 294. **Unsurveyed island in navigable river.**—It will be frequently found that islands in a navigable river were not surveyed by the government at the time of making the original survey. As to the title to such unsurveyed islands the authorities are not completely in accord in the several states. In those states holding that the riparian proprietor owns to the center of the main channel of the stream subject to the public rights, it is held that such owner owns such island unless it can be shown that there was a mistake in the original survey and that the survey of the island was unintentionally omitted or that there had been a fraud perpetrated on the government in making such survey.[86] And in such cases such fraud or mistake

[82]Franzini v. Layland, 120 Wis. 72, 97 N. W. 499.

[83]Franzini v. Layland, 120 Wis. 72, 97 N. W. 499.

[84]Franzini v. Layland, 120 Wis. 72, 97 N. W. 499.

[85]Franzini v. Layland, 120 Wis. 72, 97 N. W. 499.

[86]Franzini v. Layland, 120 Wis. 72, 97 N. W. 499.

can only be taken advantage of by the government.[87] In those states where it is held that the state owns the beds of navigable streams, an island situated as above and unsurveyed would probably be held to be the property of the state.[88]

§ 295. **Title to beds of navigable rivers.**—There are two lines of cases dealing with the title to the beds of navigable streams. One line of cases holds that the riparian owners take to the center of the main channel of the stream subject to the public rights to navigate such stream. The other line of decisions holds that the riparian owner owns only to high-water mark, and that the state owns the bed of the stream and also the shore below high-water mark. As an illustration of the former the reader is referred to the rule in Illinois as laid down in St. Louis v. Rutz.[89] The latter rule is sustained by the Iowa court in Barney v. Keokuk.[90] Thus two states bordering on the same river have established two fundamentally different rules with reference to this important subject. Hence, the reader must necessarily look to the decisions of his own state to find the rule established there. Remember each state fixes its own rule with reference to accretion and reliction and rights of riparian owners thereto and the federal courts will look to the decisions in such states for guidance.

It was held in St. Louis v. Rutz, that, "It is a rule of property in Illinois, that the fee of the riparian owner of land in that state bordering on the Mississippi river extends to the middle line of the main channel of the river."[91] The Iowa rule is laid down in Barney v. Keokuk, where it is said, "And it is held that the bed of the Mississippi river and the banks to high-water mark belong to the state, and that the title of the

[87]Franzini v. Layland, 120 Wis. 72, 97 N. W. 499.

[88]Post § 295.

[89]St. Louis v. Rutz, 138 U. S. 226, 34 L. ed. 941, 11 Sup. Ct. 337.

[90]Barney v. Keokuk, 94 U. S. 324, 24 L. ed. 224.

[91]St. Louis v. Rutz, 138 U. S. 226, 34 L. ed. 941, 11 Sup. Ct. 337.

riparian proprietor extends only to that line."[92] The court further suggests that this rule applies as well where the land was granted to bound upon the river generally, as where it was granted according to a survey run along the bank by meandering and hence that it applied to the city of Keokuk.

§ 296. **Accretion and movable islands—Avulsion.**—It has been held that, "the law of title by accretion can have no application to a movable island, traveling for more than a mile, and from one state to another, for its progress is not imperceptible, in a legal sense."[93] It is often important to ascertain whether a change is imperceptible or sudden or perceptible. If the former, the boundary line changes accordingly; if the latter such boundary line remains as it was before, and it is said in St. Louis v. Rutz, that, "If the bed of the stream changes imperceptibly by the gradual washing away of the banks, the line of the land bordering upon it changes with it; but if the change is by reason of a freshet, and occurs suddenly, the line remains as it was originally."[94] So, too, it is the universal rule that "the sudden and perceptible loss of land on the premises conveyed to the plaintiff, which was visible in its progress, did not deprive the grantor of the plaintiff of his fee in the submerged land, nor change the boundaries of the surveys on the river front, as they existed when the land commenced to be washed away."[95] Where the accretion is entirely to an island it belongs wholly to the owner or owners of the island.[96] So, too, if the accretion to the island increases to such an extent that the island joins the main land such accretion belongs to the owner of the island.[97] But the right to

[92]Barney v. Keokuk, 94 U. S. 324, 24 L. ed. 224.

[93]St. Louis v. Rutz, 138 U. S. 226, 34 L. ed. 941, 11 Sup. Ct. 337.

[94]St. Louis v. Rutz, 138 U. S. 226, 34 L. ed. 941, 11 Sup. Ct. 337.

[95]St. Louis v. Rutz, 138 U. S. 226, 34 L. ed. 941, 11 Sup. Ct. 337.

[96]Bellefontaine Imp. Co. v. Niedringhaus, 181 Ill. 426, 55 N. E. 184, 72 Am. St. 269.

[97]Fowler v. Wood, 73 Kans. 511, 85 Pac. 763, 117 Am. St. 534, 6 L. R. A. (N. S.) 162; Cooley v. Golden, 117 Mo. 33, 23 S. W. 100, 21 L. R. A. 300.

accretion to an island can not extend lengthwise of a stream so as to shut off adjacent riparian proprietors from access to such stream.[98]

§ 297. **Right to build wharves and docks.**—While it is generally held that the riparian owner has a right to build wharves and docks along the shore line of a stream or lake to navigable waters, yet this is disputed in those states which hold to the rule that the riparian owners take only to high-water mark. In those states, like Iowa and Arkansas, where the proprietor takes only to high-water mark the "public authorities have the right in Iowa to build wharves and levees on the bank of the Mississippi river below high-water mark, and make other improvements thereon, necessary to navigation, or public passage by railroads or otherwise, without the consent of the adjacent proprietor, and without making him compensation."[99] And the state of Arkansas holds to the same rule and it is said by the court in that state that: "A riparian owner upon a navigable stream, deriving title from the United States, takes only to high-water mark, and not to the middle of the stream, the title to the bed of the stream being in the state."[1] This doctrine seems extreme and the natural consequence is that the riparian proprietor can be shut off from the stream or water front, without compensation therefor. But as suggested at the beginning of this section, the general rule is that the riparian proprietor has the right to build wharves and docks along the shore of a lake or stream washing his lands. Where it is so held that right can not be taken away without compensation.[2]

[98]Moore v. Farmer, 150 Mo. 33, 56 S. W. 493, 79 Am. St. 515n; Mobile Transportation Co. v. Mobile, 153 Ala. 409, 44 So. 976, 127 Am. St. 57n.

[99]Barney v. Keokuk, 94 U. S. 324, 24 L. ed. 224.

[1]St. Louis I. M. & S. Ry. Co. v. Ramsey, 53 Ark. 314, 13 S. W. 931, 8 L. R. A. 559, 22 Am. St. 195.

[2]Fulton Light Co. v. State, 200 N. Y. 400, 94 N. E. 199, 37 L. R. A. (N. S.) 307.

§ 298. **High-water mark and low-water mark.**—The expressions, "high-water mark" and "low-water mark," are frequently found in descriptions of land in conveyances and in the law books. It is, therefore, important to know what is meant by such expressions. The line of high-water mark is indicated generally by the edge of or boundary between vegetation and bare land. It is said by some of the courts that, "The high-water mark of a navigable stream, the line delimiting its bed from its banks, is to be found by ascertaining where the presence and action of water are so usual and long continued in ordinary years as to mark upon the soil of the bed a character distinct from that of the banks in respect to vegetation and the nature of the soil."[3] And again we find the Iowa courts saying, "High-water mark is the line between the riparian proprietor and the public—is to be regarded as co-ordinate with the limit of the river bed."[4] So, too, it has been said by another court, "What the river does not occupy long enough to revert from vegetation, so far as to destroy its value for agriculture, is not river bed."[5] And the Supreme Court of the United States, in the case of Howard v. Ingersoll, has laid down the rule that, "The banks of a river are those elevations of land which confine the waters when they rise out of the bed; and the bed is that soil usually so covered by water as to be distinguishable from the banks, produced by the common presence of an action of flowing water. But neither the line of ordinary high-water mark, or ordinary low-water mark, nor of a middle stage of water can be assumed as the line dividing the bed from the banks. The line is to be found by examining the bed and banks, and ascertaining where the presence and action of water are so common and

[3]St. Louis I. M. & S. Ry. Co. v. Ramsey, 53 Ark. 314, 13 S. W. 931, 8 L. R. A. 559, 22 Am. St. 195.

[4]Houghton v. Chicago, D. & M. Co., 47 Iowa 370.

[5]St. Louis I. M. S. Ry Co. v. Ramsey, 53 Ark. 314, 13 S. W. 931, 8 L. R. A. 561, 22 Am. St. 195.

usual, and so long continued in all ordinary years, as to mark upon the soil of the bed a character distinct from that of the banks, in respect to the nature of the soil itself."[6] Also see Railway Co. v. Ramsay.[7]

§ 299. **Water must form boundary to give riparian rights.**—It is the universal rule that to give a party riparian rights the water must form the boundary of the tract of land to which it is claimed riparian rights attach. And it is said that to entitle a party to alluvial formation, or land gained from a lake by alluvium, the lake must form a boundary of his land and if any land lies between his boundary line and the lake, he can not claim such formation.[8] And where the river or lake or other body of water is not mentioned as a boundary in the patent or deed, but the boundary is a permanent line fixed by courses and distances, metes and monuments "between high and low-water mark," the patentee was not a riparian owner.[9]

§ 300. **Additional rules for apportioning flats.**—We have heretofore touched on the subject of apportioning flats among the several riparian owners of water fronts under certain conditions.[10] As is evident there are many variations of those rules dependent on the surrounding circumstances. If the shore line of the waters is straight the problem is a simple one; if curved it becomes more complex though worked out by the same rule. One rule commonly followed is to draw lines from the point of intersection of the boundary lines between riparian owners with the old shore line and at right angles thereto to the new shore line. If the old shore line be straight the lines so run would be a prolongation of the boundary lines between riparian owners. If the shore be curved such lines

[6]Fowler v. Hart, 54 U. S. (13 How.) 381, 14 L. ed. 186.

[7]St. Louis I. M. & S. Ry. Co. v. Ramsey, 53 Ark. 314, 13 S. W. 931, 8 L. R. A. 561, 22 Am. St. 195.

[8]Bristol v. Carroll, 95 Ill. 84.

[9]Sweringen v. St. Louis, 151 Mo. 348, 52 S. W. 346.

[10]Emerson v. Taylor, 9 Maine 42, 23 Am. Dec. 531; ante § 254.

would necessarily converge or diverge, as the case might be. It is said in a Maine case that: "The modes of ascertaining the side lines of water lots, from the upland to low-water mark, under the Colonial Ordinance of 1641, where they have not been otherwise settled by the parties, is, to draw a base line from one corner of each lot to the other, at the margin of the upland, and run a line from each of these corners, at right angles with such base line, to low-water mark. If the line of the shore is straight, the side lines of the lots, thus drawn to low-water mark will be identical; but if, by reason of the curvature of the shore, they either diverge from or converge with each other, the land enclosed by both lines, or excess, as the case may be, is to be equally divided between the adjoining proprietors."[11] And that court says: "The mode of applying the principle is this: Draw a base line from the two corners of each lot, where they strike the shore; and from those two corners extend parallel lines to low-water mark, at right angles with the base line. If the line of the shore be curved, there will be interference in running such lines, and the loss occasioned by it must be equally borne or gain enjoyed equally by contiguous owners."[12] See Fig. 73. Referring to that figure A-B, B-C, C-D, D-E, E-F, F-G, G-H, H-I, I-J represent the lines connecting the two ends of the several lots. The two curved lines bound the flat land to be divided between the owners of the several lots. The lines A-1, B-1 represent the lines drawn at right angles to A-B; the lines B-2, C-2 represent the two lines drawn at right angles to the line B-C. M, N, O, P, Q, R, S, T, U, etc., represent the lines drawn midway between the several perpendicular lines and are the ascertained boundaries of the several lots. This is supposed to make an equitable division of such flats among the several

[11]Emerson v. Taylor, 9 Maine 42, 23 Am. Dec. 531.

[12]Treat v. Chipman, 35 Maine. 34.

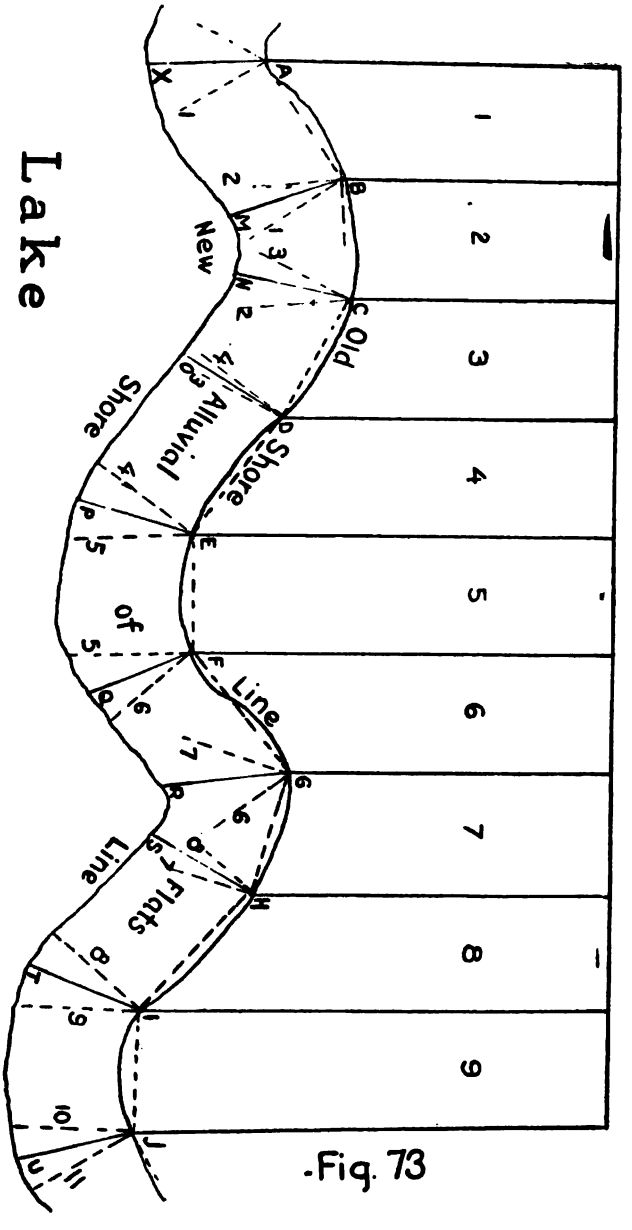

Lake
New
Old
Shore
Alluvial
Shore
of
Line
Flats
Line
1
2
3
4
5
6
7
8
9

Fig. 73

riparian proprietors. Compare this method with that in Northern Pines Land Company v. Bigelow.[13]

A similar rule was laid down by the courts of Connecticut in Morris v. Beardsley.[14] Quoting from the opinion of the court in the latter case we find: "A piece of land on the sea shore was divided between two distributees of an estate by a line extending through the upland to the shore line but not running through the flats between high and low-water mark. The shore was a convex curve. Held: 1. That the law supplied the rule for the division of the flats; 2. That by that rule the line was to run perpendicularly to the shore line from the point of division at that line to low-water mark; 3. That in determining the curve of the shore its general trend for a considerable distance was to be considered omitting to notice small indentations and projections." It will be noted that the object is to make an equitable division of the accretion or flats among the several riparian owners. It would seem, however, that a more equitable division would be made by following the rule laid down by the Wisconsin court in Northern Pine Land Co. v. Bigelow.[15]

The Supreme Court of Michigan, in the case of Clute v. Fisher, fell into an error in the discussion of the matter of the extent of the ownership of a riparian proprietor. The syllabus in that case reads: "The owner of a fractional subdivision of a section meandered by the United States survey along the margin of an inland lake, navigable or otherwise, is entitled to so much of said lake as lies within the lines of his fractional subdivision extended into the lake to the limit of the entire subdivision."[16] It will be seen that the court made

[13]Northern Pine Land Co. v. Bigelow, 84 Wis. 157, 54 N. W. 496; ante § 254.

[14]Morris v. Beardsley, 54 Conn. 338, 8 Atl. 139.

[15]Northern Pine Land Co. v. Bigelow, 84 Wis. 157, 54 N. W. 496.

[16]Clute v. Fisher, 65 Mich. 48, 31 N. W. 614.

the mistake by going into a matter that was not really before it. However, the court thereafter reversed the dictum of the case.[17] We find the court in the latter case, saying: "The rule laid down in Clute v. Fisher, that the owner of a fractional subdivision owns the soil which is included within the extended subdivision lines, is inconsistent with the rule repeatedly laid down in this state, that the shore proprietor owns to the thread of the center of the stream." And further along we find that court saying: "It is also inconsistent with the rule laid down in Clark v. Campau, 19 Mich. 328, * * *, that side lines are to be governed by the course of the stream and the submerged land bounded by lines drawn at right angles with the central thread, rather than at right angles with the shore at the point of departure."[18]

§ 301. **Division of bed of round lake.**—Courts have had some difficult questions to solve with reference to the division of the bed of dried up lakes, between the various riparian owners. So also, with reference to the beds of dried up streams. The shape of the particular body of water, whether round or long; whether the shore line be regular or irregular; whether the bed gradually slopes to one central point as the deepest place in the lake; or whether there may be several places in the bed thereof last to dry up, thus forming independent bodies of water as the waters recede, are points which courts will consider in making an "equitable division" of the bed. As usual courts do not agree on the best method to pursue in a given case. The object to be sought always is to divide the bed as to equitably give to each owner of shore his rightful part of the made land or dried up bed. There are many interesting cases and some of them subject to criticism,

[17]Grand Rapids Ice &c. Co. v. South Grand Rapids Ice &c. Co., 102 Mich. 227, 60 N. W. 681, 47 Am. St. 516.

[18]Clark v. Campau, 19 Mich. 325.

as one might think, because they apparently fail to accomplish the object sought.

As an illustration of the different views of courts we cite the case of Scheifert v. Briegel decided by the Minnesota court.[19] In that case the lower court held to one view and the appellate court to another. The diagrams which illustrate the two positions taken are here reproduced substantially.

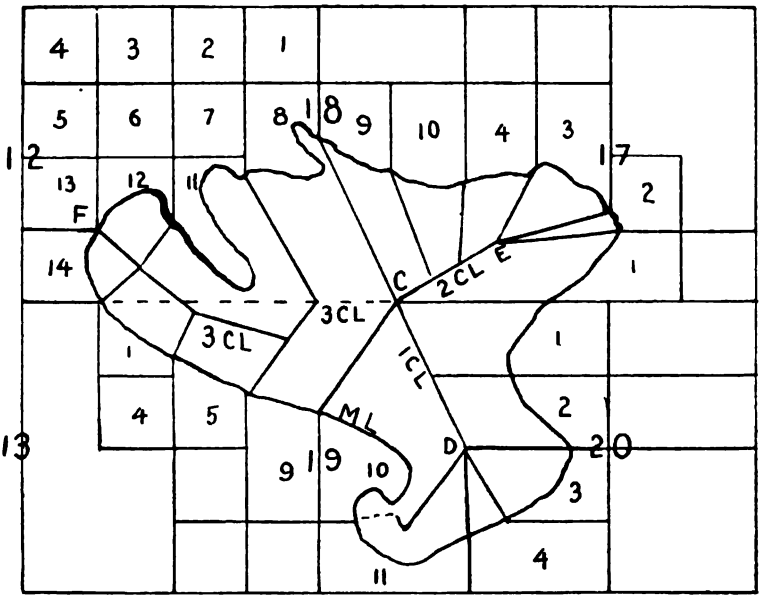


Fig. 74

Figs. 74 and 75. Fig. 74 represents the result of the division made by the lower court and Fig. 75 the suggestions made by the Supreme Court. While the appellate court does not finally decide Fig. 75 to be the correct division yet it suggests something along that line. With all due respect to the latter

[19]Scheifert v. Briegel, 90 Minn. 125, 96 N. W. 44.

body we are inclined to agree with the court below. To our mind it is more equitable, all things considered, and more practical. Still there are some excellent suggestions made by the higher court.

The body of water originally and at the time of the government survey covered parts of several sections, namely, sections 17, 18, 19 and 20, township 112, range 31, and sections 12 and 13, township 112, range 32. Thereafter the lake dried up and left several hundred acres of land to be divided

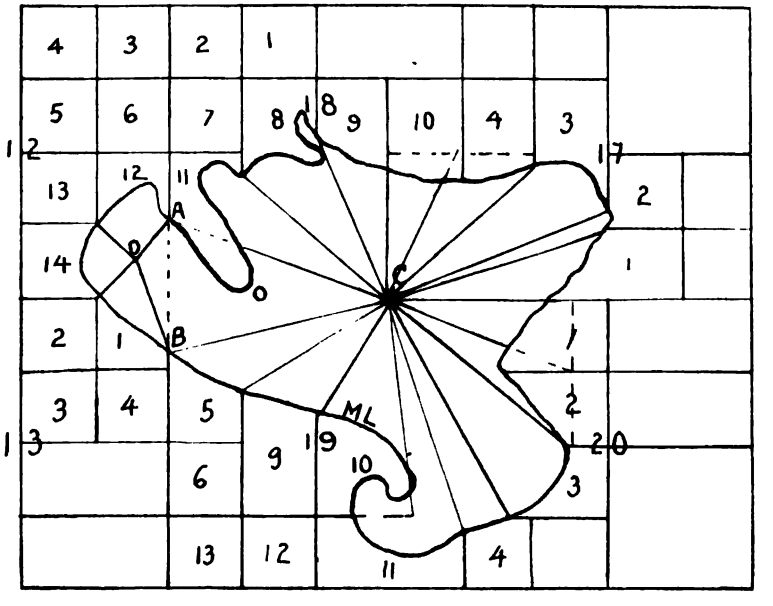


Fig. 75

among the several riparian owners. It will be seen by an examination of the diagrams that the body of water originally was nearly round though there were several deep indentations and sharp projections. It was these indentations and projections which perplexed the surveyors and the courts. We quote from the opinion: "The trial court divided the land

in accordance with the plat, (Fig. 74), and for the purpose of division established three central points, C, D and E, connecting them with center lines, marked upon the plat (1CL, 2CL, and 3CL.) Having established these center points and center lines, the court divided the land among the several owners by extending the side lines of the several tracts from the point where they crossed the meander line to points (C, D and E,) and to points on the center lines as indicated on the plat."

While the Supreme Court does not undertake to decide the question finally according to Fig. 75, it does suggest if the facts are as that court understands them to be the division as suggested in that figure might be made by the trial court on a second trial. The court says: "We have attempted only to lay down certain principles which may be applied in case the facts shall prove to be as we have assumed them to be. Upon a new trial evidence should be taken as to the history of the lake, and the division worked out as near as may be in accordance with the principles herein defined."[20]

There are several things we desire to criticise about the suggestions contained in Fig. 75. First, the boundary between lot 4, section 17, and lot 10, section 18, insofar as the "made land" is concerned, is found by drawing a line from the point where the boundary line between the original lots intersects the quarter-line east and west, to the center of the lake, C. While this makes a fairly equitable division yet it leaves the boundary line between the two lots irregular and in a way unsatisfactory. The same may be said of lots 10 and 11 in section 19, and lots 1 and 2 in section 20. The latter is not so bad as the others and would not be subject to much criticism. Again lot 1 in section 13, and lots 11, 12 and 14, in section 12, are real problems. This is indicated by an examination of both figures. In Fig. 75 the point D is taken to be the center

[20]Scheifert v. Briegel, 90 Minn. 125, 96 N. W. 44.

of the bay and lines are run from such center to the point where the boundary lines intersect the original margin of the lake. This leaves an irregular tract, A D B C, which is not apportioned to any lot or lots. The court suggests that this irregular tract of land, less the sharp projection at O, be divided between lots 1, 12 and 14, "according to their acreage." This might be equitable and still quite unsatisfactory. In fact, any division that may be made will not suit everybody. It would seem to the author, however, that something along the line of Fig. 74 would be more satisfactory as a whole.

We have omitted the acreages and distances in the diagrams as unnecessary in the illustrations. The diagrams represent the distances fairly correct. The irregular line, "M L," represents the original meander line. The lake is now dry. There was no evidence given at the trial as to how the points C, D and E, Fig. 74, were fixed. Nor was there any evidence as to where the center of the lake was or where the deepest part was located. Nor was there any evidence as to whether or not the bed had a gradual slope to a common point approximately in the center or whether there were several deep places in the bed, forming individual lakes as the waters receded. It is also true that if partitioned according to Fig. 74, lot 11 in section 18, and lot 10 in section 19, would have a disproportionate part of the bed of the lake and this ought to be avoided if possible. On the whole we like the general idea in Fig. 74, and prefer it to Fig. 75.

§ 302. **Division of dock privileges distinguished between division of bed of lake.**—It seems that some of the cases make a distinction between the division of dock privileges between adjacent owners of water front and the division of the dried up body of water. This may well be. In the case of the division of a line between adjacent wharves, the main question is to divide the line of navigability between the adjacent owners of shore so as to make an equitable division thereof.

The line of division of dock privileges may or may not be in the same place as the division line for dry bed of lake, depending upon circumstances. The Michigan court, in the case of Jones v. Lee,[21] says with reference to this matter: "But as this lake is navigable and large, the riparian rights, (which for all valuable purposes of a possessory nature, must be confined with reference to the paramount rights of navigation) depend on those principles which apply where immediate dependence on the *filum aquae* is impracticable. This was fully recognized in Rice v. Ruddiman,[22] and Lincoln v. Davis.[23] The chief value of riparian rights, in such case, must refer to the access to navigation and use with reference to it of the space near the shore, and not to the area of deep water which can not be apportioned, as was indicated in those cases and others here and elsewhere."

For an excellent illustration of the manner of dividing the line of navigable water in a large bay between shore proprietors, the reader is referred to the case of Northern Pine Land Co. v. Bigelow.[24] That case is fully discussed in section 254. We think the rule there laid down is sound, equitable and practicable. Had the problem there been the division of the bed of a former lake, now left dry by the recession of the waters, a different problem would be presented, and hence a different method of division might be required in order to equitably divide such bed between the various riparian owners.

§ 303. **State owns the beds of navigable streams and lakes.**—In some states it is held that the state owns the beds of both lakes and streams that are navigable, as we have already seen. In other states it is held that the riparian owner

[21]Jones v. Lee, 77 Mich. 35, 43 N. W. 856.

[22]Rice v. Ruddiman, 10 Mich. 125.

[23]Lincoln v. Davis, 53 Mich. 375, 19 N. W. 103.

[24]Northern Pine Land Co. v. Bigelow, 84 Wis. 157, 54 N. W. 496.

owns to the center of the stream subject to the public rights therein. Unless otherwise provided by articles of admission as a state, the state owns the beds of navigable lakes and rivers within its borders.[25] And the right of the state in the shores of lakes and rivers may be granted to private individuals.[26] And under the laws of the United States a grant of land bordering on navigable waters carries title to ordinary high-water mark.[27] And it is said: "Upon the question of how far title extends of the owner of lands bounded on a river actually navigable, but above the ebb and flow of the tide, there is diversity in the laws of the different states; but the prevailing doctrine now is that he does not, as in England, own to the thread of the stream."[28] But see the rule in Illinois and other states.[29] And the rights of riparian owners are governed by the laws of the state in which the land is situated.[30]

§ 304. **Meander line established by gross fraud or mistake.**—It will be found that occasionally, the meander line was established by the government surveyor fraudulently or by mistake in a place other than the shore line of the body of water, and it is said that where a meander line is established so far from the shore line as to indicate gross error or fraud and the government has done nothing to part with its title to the unsurveyed land, it may cause a resurvey of the same and dispose of it as government land. In the case of Barringer v. Davis, the unsurveyed land was held to be a part of the original grant.[31] Referring to Fig. 76, the diagram represents a

[25]United States v. Ashton, 170 Fed. 509; Shively v. Bowlby, 152 U. S. 1, 38 L. ed. 381, 14 Sup. Ct. 548.

[26]Shively v. Bowlby, 152 U. S. 1, 38 L. ed. 381, 14 Sup. Ct. 548.

[27]Shively v. Bowlby, 152 U. S. 1, 38 L. ed. 381, 14 Sup. Ct. 548.

[28]Shively v. Bowlby, 152 U. S. 1, 38 L. ed. 381, 14 Sup. Ct. 548.

[29]St. Louis v. Rutz, 138 U. S. 226, 34 L. ed. 941, 11 Sup. Ct. 337.

[30]Shively v. Bowlby, 152 U. S. 1, 38 L. ed. 381, 14 Sup. Ct. 548.

[31]Barringer v. Davis, 141 Iowa 419, 120 N. W. 65.

part of section 27-97-35, surveyed in the year 1857. The east half of the section is fractional. The original survey and plat showed the meander line of a lake to be as marked on the diagram, "meander line," and gave lots 1, 2, 3 and 4. This line was never, in fact, the real shore line. The actual shore

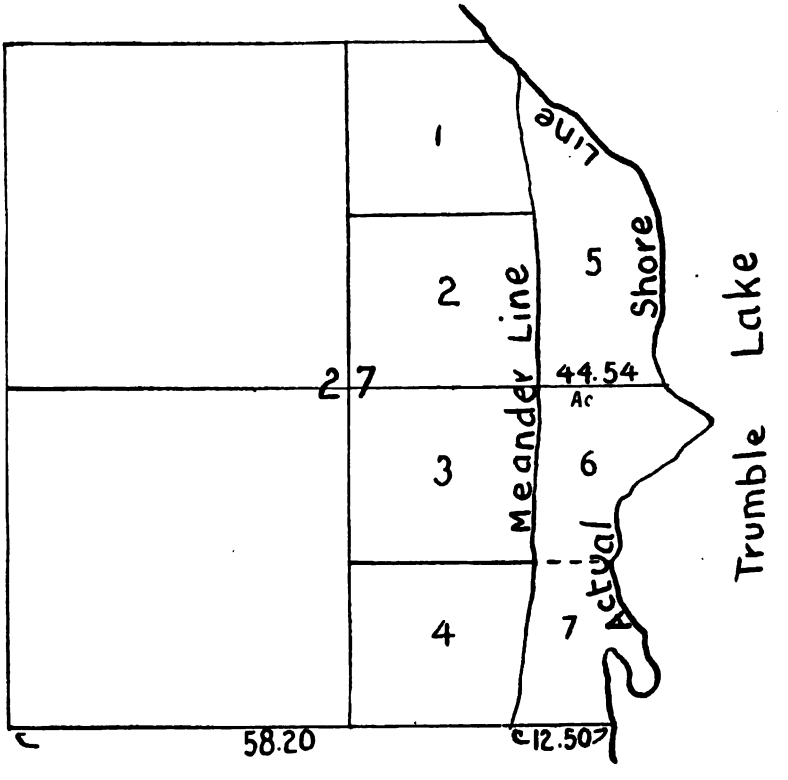


Fig. 76

line is represented on the diagram as, "actual shore line," thus leaving a large amount of land between the old and new lines. Upon application and many years subsequent to the original survey, the government made a resurvey of the section with the result as indicated on the plan. The resurvey was platted,

showing additional lots 5, 6 and 7, and the new meander line, marked on the diagram as "actual shore line." The controversy was as to that part of the land marked "lot 5." This was claimed by the owner of lots 1 and 2, and also by a party who secured a patent from the government after the resurvey. It was held that the original patentee, under the "peculiar" circumstances of the case, took the land to the lake shore. The court, on page 427, says: "The meander line is not established as a boundary, but a line drawn from a point to a point along the shore, disregarding its minor sinuosities and is used, not to mark the limits of the tract of land adjacent thereto, but simply as a basis from which to measure such tract and determine the number of acres for which the government will demand payment, and when payment for such acreage is made, the title of the purchaser extends to the water's edge, even though in places there be small unmeasured tracts lying outside of the meander line."[32] In Barringer v. Davis at page 428, the court further says: "This rule is subject to the exception that if by a mistake or fraud in the survey, a meander line be run where no lake or stream calling for such expedient exists, or if it be established at such excessive distance from the actual shore as to leave between its course and the shore an excess of unsurveyed land so great as to clearly and palpably indicate fraud or mistake in the survey, then the courts will, for equitable reasons, treat the meander line as a boundary."[33] And it is conceded that the government may, in such case, order a resurvey of such land.[34] So, too, we find in the Barringer case at page 428, "And where such mistake has occurred, and the United States has not in any way parted with its rights to

[32]St. Paul & Pacific Ry. Co. v. Schurmeier, 74 U. S. 272, 19 L. ed. 74; Hardin v. Jordan, 140 U. S. 380, 35 L. ed. 428, 11 Sup. Ct. 838; Everson v. Waseca, 44 Minn. 247, 46 N. W. 405.

[33]Barringer v. Davis, 141 Iowa 419, 120 N. W. 65.

[34]Mitchell v. Smale, 140 U. S. 406, 35 L. ed. 442, 11 Sup. Ct. 840.

the land so left unsurveyed, the proper department of the government may cause the survey to be made and dispose of such tracts as portions of the public domain. But where the United States has parted with its title, a new survey can have no effect upon the rights of those holding under prior grants or patents." We might suggest that the reading of the original grant in the Barringer case clearly showed an intention to transfer all of its rights to the water line.[35]

§ 305. **Division of cove flats.**—The division of cove flats is subject to the same general rule as applies to the division of accretion, and the owners of land bordering on a cove, where the sea ebbs and flows, who are entitled, under the colony ordinance of 1641, to the adjoining flats "to the low-water mark," can not always claim the flats in the direction of the exterior lines of their respective uplands, but only in the direction toward low-water mark from the two corners of the upland at high-water mark.[36] In other words the boundary line of low-water mark must be divided between the several riparian owners in proportion to their respective holdings at high-water mark. This is supposed to make an equitable division of the flats. For instance if the length of the line of low-water mark is one hundred rods and the length of the line of high-water mark is two hundred rods, then each owner would be entitled to one-half of the width of his high-water mark holding. If the water should permanently settle away and the flats become permanently dry the division would be made in like manner.

In order that the reader get a clear understanding of the meaning, we have drawn two diagrams, illustrating a cove, with high-water mark and low-water mark borders. See Figs. 77 and 78. The line AB represents the border of low-water mark and ACB represents the border of high-water

[35]Barringer v. Davis, 141 Iowa. 428, 120 N. W. 65.

[36]Rust v. Boston Mill Co., 6 Pick. (Mass.) 158.

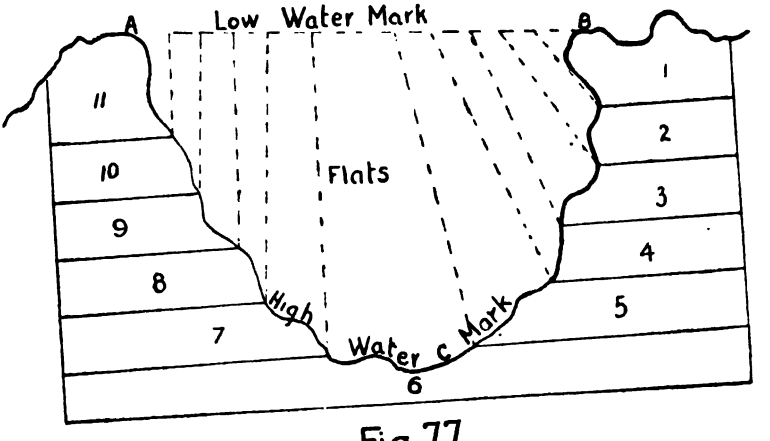

A
Low Water Mark
B
11
10
9
8
7
Flats
High Water Mark
6
1
2
3
4
5

Fig. 77

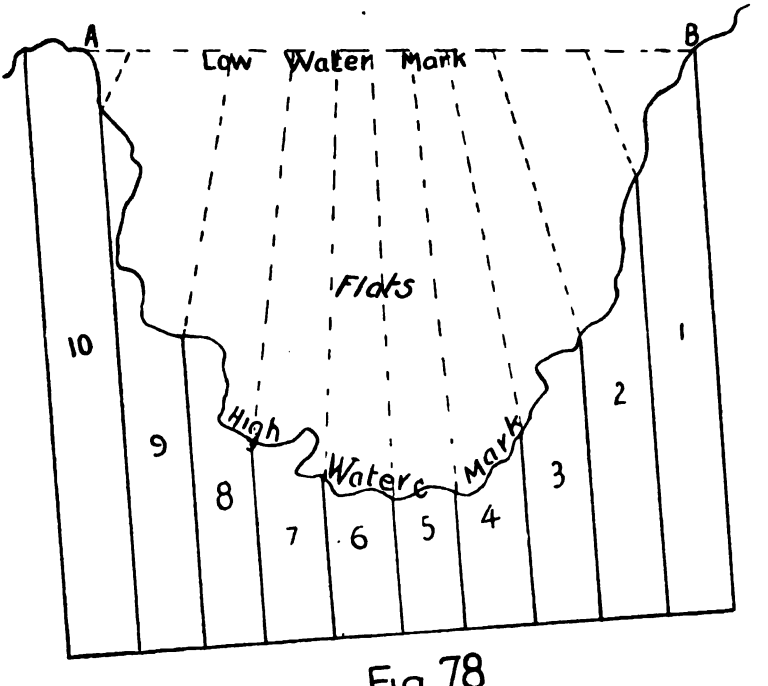

A
Low Water Mark
B
10
9
8
7
6
5
4
3
2
1
Flats
High Water Mark

Fig 78

mark. There are several lots represented thereon which, we will suppose, are owned by as many persons. For convenience we will assume the length of low-water mark to be two thousand feet and the length of high-water mark to be four thousand feet. According to the doctrine laid down the division lines between the several owners will take the directions given on the two figures depending on the locations of the lots. The Rust case is one of the early cases decided in this country and it has been frequently cited by the courts as laying down proper rules for the division of shore line privileges, dock lines boundaries, division of alluvium, and of the beds of lakes left bare by the recession of the waters.

A modification of this rule is found in the case of Walker v. Boston & M. Ry. Co., 3 Cush. (Mass.) 1, where it is said: "Where a cove, inlet, or estuary, is so irregular and varies in outline, and so traversed by crooked and meandering creeks and channels, from which the sea does not ebb, that, in dividing the flats therein, among conterminous proprietors, it is impossible to apply any of the rules, which have been applied in other cases; the most that can be done is to take the Colonial Ordinance of 1641, and apply it according to its true spirit, and, by as near an approximation as practicable to the rules which have been judicially established, to lay down such a line of division, as to give each riparian proprietor his fair and equal share." And the same case lays down the rule: "A natural channel or creek, in which the sea does not ebb, is a boundary to a claim of flats in that direction." And further discussing the question we find the court saying: "On the estuary of a river, or arm of the sea, through which there is a channel, the lines of flats will ordinarily run towards such channel, and in the most direct course."[37] In line with these suggestions the court will receive evidence of the locations of

[37]Walker v. Boston & M. Ry. Co., 3 Cush. (Mass.) 1.

channels or currents in waters covering flats to the end that a proper division of such flats may be made.[38]

Referring to Fig. 79, the line AB represents high-water mark; CD the shortest distance across the mouth of the cove; BCFE one channel; ADE another channel. The plaintiff owned the lots marked, "Walker," of which GH was the shore line. The question was as to how to divide the flats so as to give the plaintiff his proportionate share. It was held that GHIJ was the proper division of that part of the cove between the mouth and the upland to be parted off to the plaintiff. Held, also, that GHKL was an improper division. The court also states that Walker could have further division of the flats without the mouth of the cove by dividing line CFE in proportion to line DC, giving him an amount proportioned to IJ. He would be entitled to the additional tract, IJFO.

And on the question of making a further division of that part of the flats lying without the mouth of the cove, the court, at page 25 says: "We see no reason why, upon the same principle of giving an equal division, these same proportions should not widen and spread in proportion, below the mouth of the cove, to low-water mark." And the court adds: "This mode of ascertaining the extent of the petitioner's flats may be liable to objections; we know no mode of dividing flats, which would be free from objections."[39] It is evident from the cases which have been reported and digested that, in many cases, no set rule can be applied for the division of flats, alluvium, etc., among riparian owners. The surveyor and lawyer must exercise their best judgments in devising an equitable method under the particular circumstances of the case. All of the evidence must be considered.

[38]Walker v. Boston & M. Ry. Co., 3 Cush. (Mass.) 1.

[39]Walker v. Boston & M. Ry. Co., 3 Cush. (Mass.) 1.

§ 306. **Rules for division of shore line.**—As already suggested in this chapter some of the courts have undertaken to formulate rules for the division of shore line rights and accre-

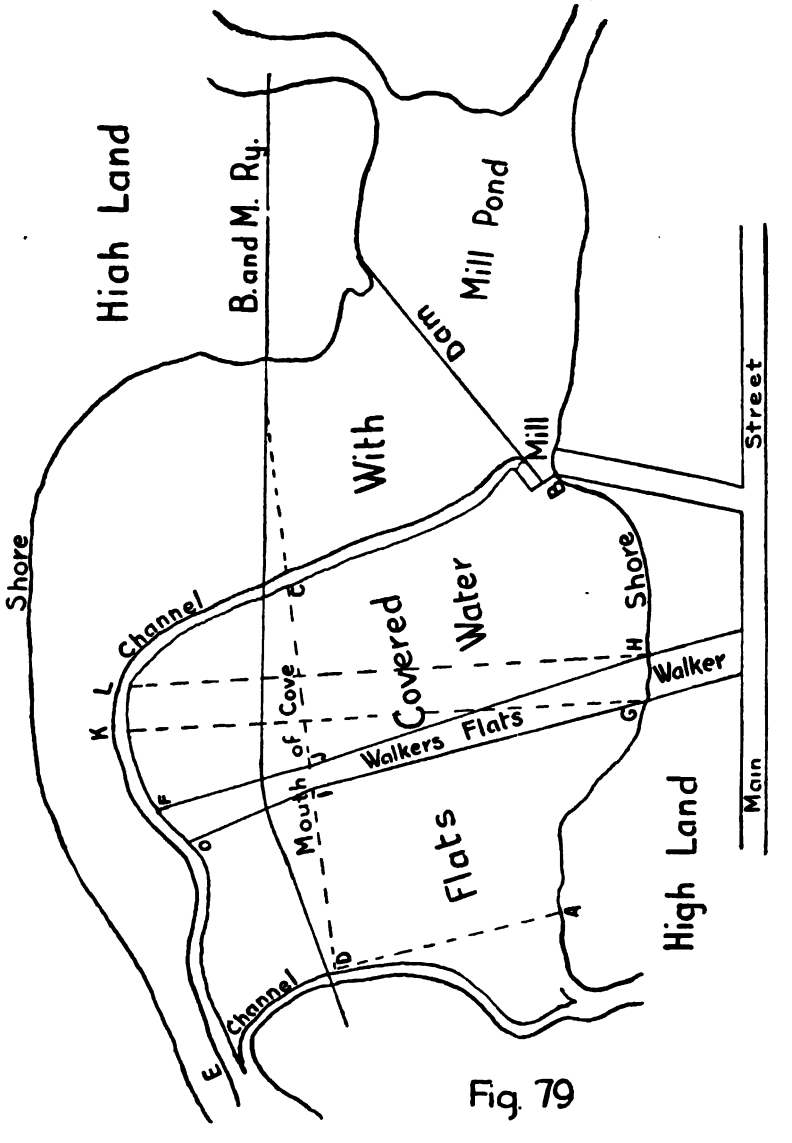


Fig. 79

tion privileges. The Massachusetts court has laid down the following rule for the division of shore lines: First, The dividing lines are generally to be drawn in the most direct course from high-water mark toward low-water mark. Second, Where it is practicable, each proprietor is entitled to the flats in front of his upland of the same width at low-water mark as at high-water mark. Third, Which is perhaps the fundamental rule, underlying and controlling all others, the flats are to be so divided as to give to each parcel a width at its outer or seaward end proportional to that which it has at high-water mark.[40] And the court in that case speaking through Gray, J., says at page 86: "The appropriate mode of division is to give to each proprietor a front line at extreme low-water mark proportionate in length to his shore line at ordinary high-water mark and to run the division lines of the flats straight from high-water mark."

Referring to Fig. 80, the court, in the Wonson case, held the proper division to be made is as therein indicated. X, A, B, C, Y represents high-water mark: HDEFG represents extreme low-water mark; HY is a mean between the flats in this cove and the one to right, and GX a mean between the flats of the cove at bar and the one to the left. The division lines were ordered run to points on the line of extreme low-water mark in proportion to the shore line of each proprietor at high-water mark. AF, BE and CD represent the divisional lines. The point F was fixed by proportion as follows: GF : AX :: GFEDH : XABCY. Similarly were the points E and D fixed. This gives to each riparian owner an equitable portion of the "extreme low-water mark" line. That is in such proportion as the whole line of low-water mark bears to the whole line of high-water mark.

[40]Wonson v. Wonson, 14 Allen (Mass.) 71.

§ 307. **Irregular lines—Islands—Straight lines.**—Bellows, J., in a New Hampshire case for a division of accretion lays down this rule: "Give to each shore owner a share of the new shore line in proportion to what he held in the old shore line and complete the division of the land by running a line from the boundary between the parties on the old shore to the point thus ascertained on the new."[41] This is the general

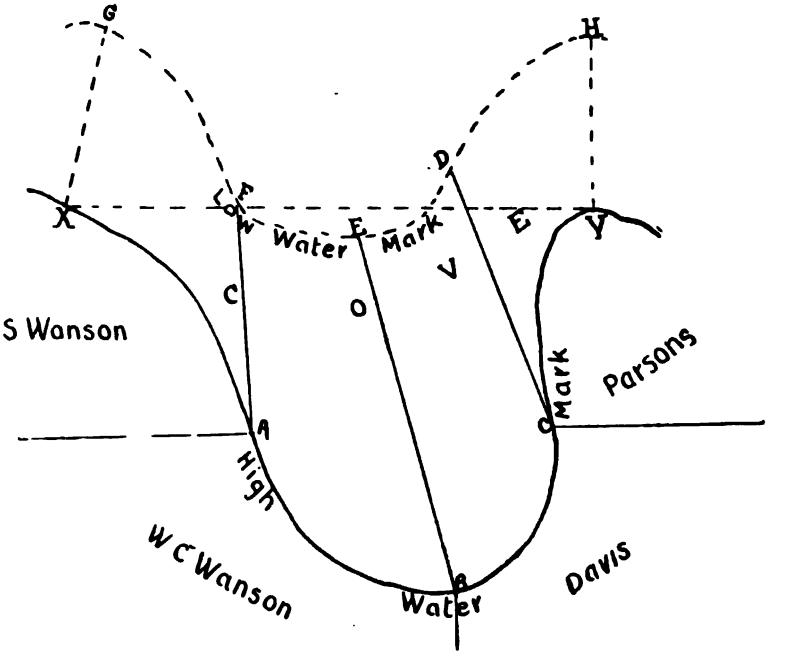


Fig. 80

rule, as we have seen and applicable to most of the cases, except where there are many deep indentations and projections along the shore lines. Where there are many deep indentations and projections so that the original shore line be irregular it would be inequitable and impracticable to measure

[41] Batchelder v. Keniston, 51 N. H. 496, 12 Am. Rep. 143.

the whole shore line. In such cases the courts have quite generally laid down the rule of fixing points on the headlands along the shore and measuring in a direct line between such points.[42] And the courts say that the dominant "rule is that each must have his due proportion of the line bounding navigability and a course of access to it from the shore exclusive of every other owner, and that all rules for apportionment or division are subject to such modification as may be necessary to accomplish substantially this result."[43]

§ 308. **Islands.**—In the event an island is formed by accretion in the middle of a stream and an inquiry arises as to whom the island belongs, circumstances will determine the division to be made. Ordinarily in nonnavigable, and, in many cases of navigable streams, the riparian owner owns to the central thread of the main channel.[44] If the island be formed in the "thread of the stream," and different people own the opposite banks such island will be divided between the riparian owners on opposite banks of the stream. If the thread of the stream, prolonged, passed through the center of the island then such line will determine such boundary division. And it is said in a Massachusetts case that "When an island is so formed in the bed of a river as to divide the channel and form partly on each side of the channel of the river, if the land on the opposite sides of the river belongs to different proprietors, the island will be divided according to the original thread of the river between them."[45] This is so, only when the island is in the thread of the stream. Should the island be formed wholly on one side of the stream, that is between the thread

[42]Northern Pine Land Co. v. Bigelow, 84 Wis. 157, 54 N. W. 496; Thomas v. Ashland &c. R. Co. 122 Wis. 519, 100 N. W. 993, 106 L. R. A. 1000.

[43]Thomas v. Ashland &c. R. Co., 122 Wis. 519, 100 N. W. 993, 106 L. R. A. 1000.

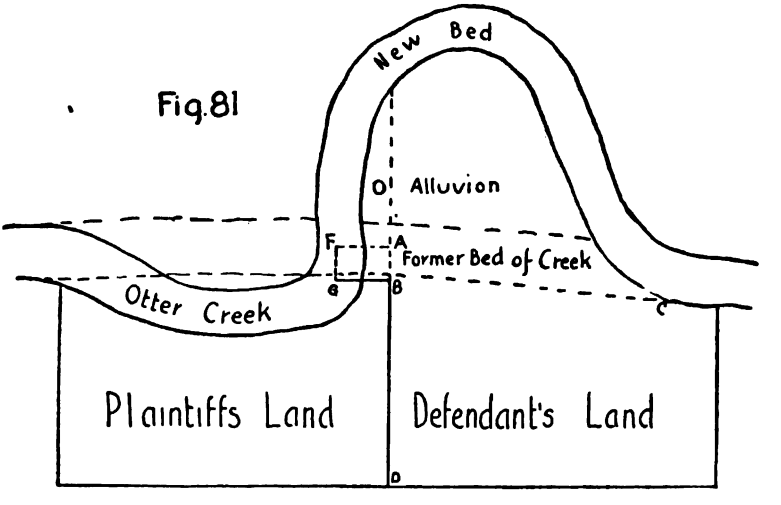
[44]Franzini v. Layland, 120 Wis. 72, 97 N. W. 499.

[45]Deerfield v. Arms, 17 Pick. (Mass.) 41, 28 Am. Dec. 275.

and one shore, then it will belong to the riparian owner on that side of the shore.

§ 308a. **Straight lines.**—Where the high-water line is substantially a straight line a riparian proprietor's boundary lines should be extended at right angles with such shore line but where the line of high-water mark is not straight, the extension of shore front must be divided proportionally among the riparian owners.[46] On principle, these distinctions are sound.

§ 309. **Division by shortest distance to stream.**—Some jurisdictions have established a rule for finding the division line between two adjoining riparian owners by drawing a line from the point of division at the water's edge to the center of the stream at the shortest distance. This method is subject to criticism and is not to be recommended as it sometimes works out very inequitably. As an illustration of the method the



reader is referred to the case of Newton v. Eddy.[47] Referring to Fig. 81, it will be noted that B represents the location of a butternut tree at the corner of the lands of the plaintiff and

[46]Delaware, L. & W. Ry. Co. v. Hannon. 37 N. J. L. 276.

[47]Newton v. Eddy, 23 Vt. 319.

defendant. BC represents the shore of the creek as it formerly ran at the time that corner was established. The creek had changed its course by washing away the banks and at the time of the litigation ran as indicated on the diagram. Point A is the point in the middle of the stream nearest to the corner B and before the creek changed, under the law of that state, was the corner between the lands of the plaintiff and defendant. After the creek had changed its course a dispute arose between plaintiff and defendant over the ownership of the alluvium marked "O." Both parties claimed that strip. Under the rule in that state, point G becomes the common corner of the lands of plaintiff and defendant, or the center of the stream at the nearest point to the butternut tree at the marked corner. And the boundary between plaintiff's and defendant's lands, after the change of the stream, is GB and BD. Thus the defendant owns alluvium resting on land formerly owned by plaintiff. This is unjust and the principle is criticised sharply by Redfield, J., who dissents from the majority opinion of the court. Held defendant owned the alluvial "O." Of course he would also own the alluvium lying east of his lands.

The court lays down the rule in the Eddy case: "Where there are adjoining proprietors of land upon the same side of the stream of water, and they are each bounded upon the stream, and the corner between them, upon the stream, is indicated by a fixed monument upon the bank of the stream, the true corner is at that point in the center of the stream, which is nearest the monument, and its direction from the monument will be changed by the changes of the course of the stream."[48]

The case of Blodgett v. Davis[49] lays down a modification of the "cove rule," and is yet governed by it. The plaintiff

[48]Newton v. Eddy, 23 Vt. 319; Hubbard v. Manwell, 60 Vt. 235, 14 Atl. 693, 60 Am. St. 110, 13 Ann. Cas. 50.

[49]Blodgett & Davis v. Peters, 87 Mich. 498, 49 N. W. 917.

and defendant were owners of land on Green Bay. Both owned sawmills located on their respective lots. Both had built wharves several hundred feet into the bay to navigable water. Plaintiff claimed defendant had built his wharf too far to the north. Action to restrain him from continuing with the building thereof was brought. The line DC, Fig. 82, is the boundary between their lots on the upland. A and B are headlands. FJ is the line of navigability. It is required to run CE, the proper division line between the rights of the parties to the shallow waters to the line of navigation. The case was tried before the lower court and an appeal from the decision taken. Cause reversed with instructions to run division line as herein set forth. Erect IA perpendicular to shore line to the left of A at A. Erect AK perpendicular to shore line to right of A at A. Bisect the angle and run AF to line of navigation. Erect LB perpendicular to shore line to the left of B at B. Erect BM perpendicular to shore line to the right of B at B. Bisect the angle and run BJ to line of navigation. FJ is the line of navigation to be divided between plaintiff, defendant, and one O. The upper court instructed the lower court to cause the shore line from A to B to be measured; likewise the line of navigation FJ to be measured; also to measure AC, the shore line of plaintiff, and CH, the shore line of defendant. Then give to each party a proportional number of feet on the line of navigation, measured from F toward J. Thus giving to each proportional distance based on the number of feet of shore owned by him. Fig. 82.

§ 310. **Accretion—Revulsion—Reliction.**—It is essential that the professions be able to determine whether the changed condition of a stream or water front results in accretion, reliction, or revulsion. To determine this question it is necessary to resort to extrinsic evidence. The history of the change must be known. It has been said, as applied to accretion, "Gradual and imperceptible change" means, "though the wit-

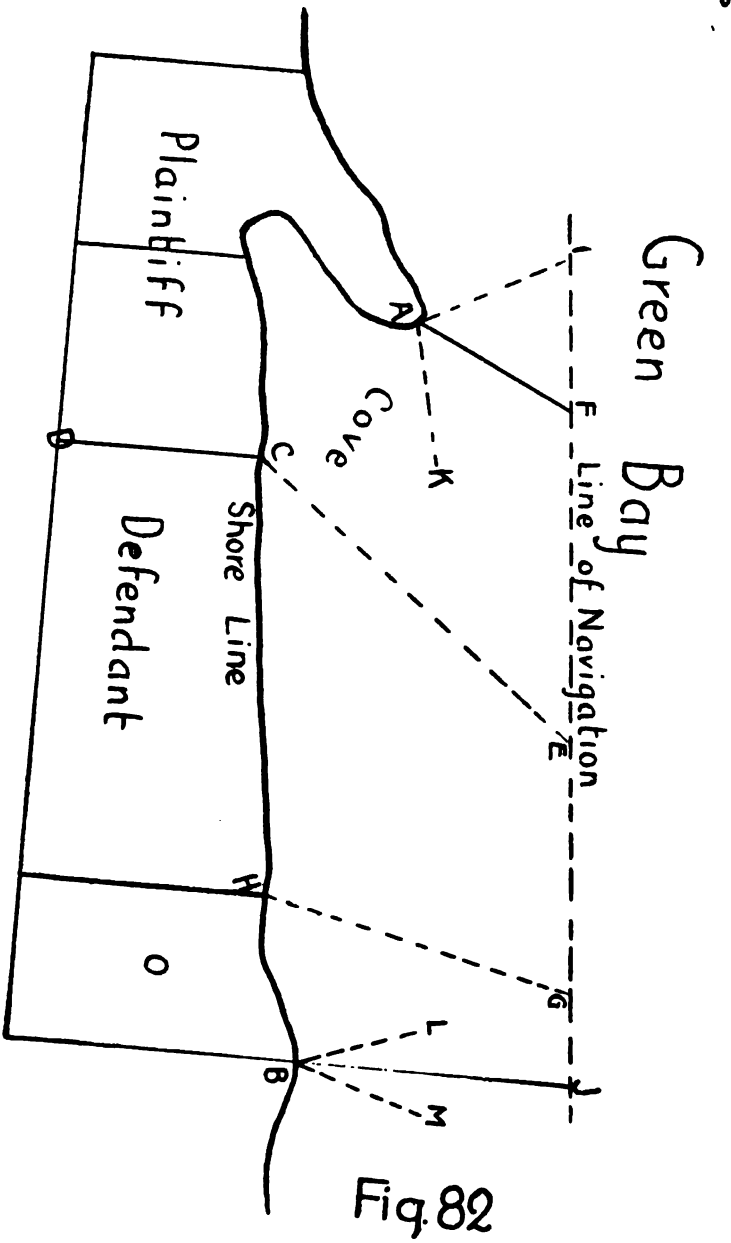

Green Bay
Line of Navigation
Plaintiff
Defendant
Shore Line
Cove
A
B
C
D
E
F
G
H
I
J
K
L
M
O

Fig. 82

nesses may see from time to time that progress has been made, they could not perceive it while the progress was going on."[50] Avulsion or revulsion must be sudden and perceptible.[51] These different terms apply to streams, navigable and non-navigable alike and, in the absence of treaty regulations, apply as between boundaries between different states and nations.[52] And it has been held that where an island was formed in a river, the water running on both sides of it and which thereafter receded from that part of the bed of the river lying between the island and the main shore, such recession did not change the title to the soil in the island as it was not of gradual and imperceptible change.[53] Practically the change was sudden and resulted in avulsion. Some confusion among the authorities is apparent by reason of the failure of the courts to distinguish between avulsion and accretion. In a case where plaintiff and defendant were riparian owners on opposite banks of a river, and situated in the river were three small islands so that the waters in the river divided as they flowed along past the islands, it was held that the islands should be divided between the two riparian owners.[54] But where a part of a fractional section bordering on a river was wholly washed away by the current and thereafter accretion formed to an island in the river opposite the fractional section and gradually toward and extended within the borders of the fractional section, but did not connect with the shore line, it was held that the owner of the fractional section had no title to any part of the island so formed.[55]

[50]St. Clair v. Lovingston, 23 Wall. (U. S.) 46; Jeffris v. East Omaha Land Co., 134 U. S. 187, 33 L. ed. 872, 10 Sup. Ct. 518; Nebraska v. Iowa, 143 U. S. 359, 36 L. ed. 186, 12 Sup. Ct. 396.

[51]Bouvier's Dictionary, "Avulsion."

[52]Denny v. Cotton, 3 Tex. Civ. App. 634, 22 S. W. 122.

[53]Victoria v. Schott, 9 Tex. Civ. App. 332, 29 S. W. 681.

[54]Strange v. Spalding, 17 Ky. L. 305, 29 S. W. 137.

[55]Cox v. Arnold, 129 Mo. 337, 31 S. W. 592, 50 Am. St. 450.

§ 311. **Rights on navigable and nonnavigable waters.**— Shore owners on meandered lakes, navigable or nonnavigable, take only to the water's edge in Illinois. In the event the lake dries up they follow the water, or if there is an accretion to the shore such owner owns the accretion. In order that the owner may continue to the water's edge the growth or the recession must be of slow and imperceptible means. Furthermore the accretion must have attached to the shore of the owners, otherwise it would either belong to the state or the private owner of the shore.[56] In Connecticut the owner of land bordering on a river, if nonnavigable, owns to the middle of the bed, and, if navigable, to high-water mark. The line of boundary changes where the change is slow and imperceptible. And the boundary lines between riparian owners, in case of nonnavigable streams run to the center line of the stream and at right angle to such center line. In case of navigable streams the boundary runs only to low-water mark but at right angles to the center of the stream.[57] It is the rule that land separated from the body of water, even by the smallest strip of land, does not carry riparian rights and it has been held in Iowa and several other jurisdictions that accretion separated from the owner's land by a highway will not belong to the owner of land on the opposite side of the highway but will be the property of the public.[58] In fact, any separation of claimant's land from the accretion by the land of another precludes his right to the accretion. And it is said that where the boundary of a tract of land is by metes and bounds and not along a river which was near by, the tract is not riparian, and the owner does not go to the stream unless

[56]Hammond v. Shepard, 186 Ill. 235, 57 N. E. 867, 78 Am. St. 274.

[57]Welles v. Bailey, 55 Conn. 292, 10 Atl. 565, 3 Am. St. 48.

[58]Cook v. Burlington, 30 Iowa 94, 6 Am. St. 649; St. Louis v. Missouri Pac. Ry. Co., 114 Mo. 13, 21 S. W. 202; Sweringen v. St. Louis, 151 Mo. 348, 52 S. W. 346.

the monuments originally placed the boundary there.[59] If the change is brought about by a sudden process known as avulsion the boundaries of the riparian owner do not change, except where a part of his land be carried away and he be unable to identify it in its new location, and it has been held that where a lake is drained in one year by a ditch and the cutting in of a river, an owner of land on the shore line acquires no title to the lake bed, by accretion or reliction.[60] It will be noted that where there is a sudden change it is neither accretion or reliction. It seems to us that the Noyes case is of doubtful authority when applied to a lake. In Wisconsin the owner of land on a meandered lake takes no fee to the bed of the lake but is entitled to any accretion to his shore by imperceptible process, and to that part of the bed of the lake left dry by recession.[61]

It is sometimes difficult to decide whether or not the owner of land has riparian rights under a certain description. In a New York case the description was: "Commence at a stake near the high-water mark of the pond," running thence "along the high-water mark of said pond to the upper end of said pond." It was held that the line thus given as a boundary was a fixed and permanent monument and did not carry the accretion.[62]

§ 312. **Riparian rights—Release and extent of.**—The courts are often called upon to determine whether or not a given deed carries riparian rights. The general rule is that if the wording of the description carries the land to the water's edge it entitles the grantee to riparian rights, unless there is a reservation of such rights. In the case of St. Louis v. Rutz,[63]

[59]Sweringen v. St. Louis, 151 Mo. 348, 52 S. W. 346.

[60]Noyes v. Collins, 92 Iowa 566, 61 N. W. 250, 26 L. R. A. 609, 54 Am. St. 571.

[61]Boorman v. Sunnuchs, 42 Wis. 233.

[62]Cook v. McClure, 58 N. Y. 437, 17 Am. Rep. 270.

[63]St. Louis v. Rutz, 138 U. S. 226, 34 L. ed. 941, 11 Sup. Ct. 337.

these words followed a description of land in a deed of premises in Illinois, bordering on the Mississippi river; "Together with all rights as riparian owner to the accretion or sand bar lying northwesterly and between the extended lines of said land herein described, situated in the county of St. Claire, and state of Illinois." It was held that the grantor conveyed all of his riparian rights appurtenant to survey of the land conveyed and did not retain to himself any interest in the fee of the bed of the river. In this case the title to a portion of an island in the Mississippi river opposite the land described, extended lengthwise of the river and beyond the end lines of the land so described. The party owning the shore land described above made claims to portions of the island above and below the end lines of his shore land, and it was held that the right of accretion to an island in a river can not be so extended lengthwise of the river as to exclude riparian proprietors above or below such island from access to the river, as such riparian proprietors.

It is the rule that when a survey is referred to in a description of land in a deed the grantor is bound by it and land granted as bounded by a river extends to the thread of the stream in those states where the riparian proprietor is held to own the bed of the stream. This is the case in Illinois and several other states, among them Massachusetts.[64] And a grant of land on a nonnavigable river carries title to an unsurveyed island on that part of the thread of the stream.[65]

§ 313. **What is a navigable river?**—The courts have frequent occasion to define a navigable stream. The common-law rule that those streams only are navigable in which the tide ebbs and flows is not generally recognized in this country.

[64]Lunt v. Holland, 14 Mass. 149; Hardin v. Jordan, 140 U. S. 380, 35 L. ed. 428, 11 Sup. Ct. 808; Trustees v. Schroll, 120 Ill. 509, 12 N. E. 243.

[65]McBride v. Whittaker, 65 Nebr. 137, 90 N. W. 966 (affirmed in 197 U. S. 510, 49 L. ed. 857, 25 Sup. Ct. 530).

The United States Supreme Court has defined the term "navigable stream" in a most satisfactory way and its rule has been followed largely in this country. That rule is that "a river is a navigable water of the United States when it forms by itself or its connections with other waters, a continuous highway over which commerce is or may be carried on with other states or foreign countries in customary modes."[66] This has become the leading case in this country on the definition of a navigable river. The court in that case also says; "If such river is only navigable between points in the same state and does not connect with a stream or lake bearing commerce between different states, it is not a navigable river of the United States but of the state where located." And if a stream be capable in its natural state of use for commerce, no matter how conducted, it is navigable in fact, and becomes a public highway.[67] And a stream though not deep enough to permit the passage of boats over every part of it may be navigable.[68]

§ 314. **Riparian rights a valuable appurtenant.**—The law has always regarded riparian rights as extremely valuable and will carefully guard those rights and divide any accretion adjacent thereto between the several riparian proprietors so as to equitably give to each his just portion thereof. And it is said: "When land is bounded by a lake or pond, the water, equally as in the case of a river, is a concrete object, a unit; and when named as a boundary the natural inference is that the middle line of it is intended,—that is the line equidistant

[66]The Montello, 11 Wall. (U. S.) 411.

[67]United States v. Montello, 20 Wall. (U. S.) 430, 22 L. ed. 391; United States v. Rio Grande, D. & I. Co., 174 U. S. 690, 43 L. ed. 1136, 19 Sup. Ct. 770; Baldwin v. Erie Shooting Club, 127 Mich. 662, 87 N. W. 59; Griffith v. Holman, 23 Wash. 354, 63 Pac. 239, 54 L. R. A. 178; Falls Mfg. Co. v. Oconto R. I. Co., 87 Wis. 149, 58 N. W. 257; Willow River Club v. Wade, 100 Wis. 99, 76 N. W. 273, 42 L. R. A. 305.

[68]St. Anthony Falls W. P. Co., v. St. Paul Water Coms., 168 U. S. 349, 42 L. ed. 497, 18 Sup. Ct. 157,

from the land on either side."[69] The court in the latter case cites a number of decisions.[70]

§ 315. **Riparian owners.**—It will be seen that the rights of riparian owners depend largely, for their limits, on the law of the particular jurisdiction in which said rights arise. For instance some states, like Wisconsin, hold that those rights extend to the center line or "thread of the stream," in all streams navigable or unnavigable. Other states, like Missouri, hold that the owner takes the land on navigable streams only to high-water mark. Hence, the rights of riparian owners are always defined by the laws and decisions of the particular jurisdiction. The courts of Arkansas hold that the owner of land on a navigable stream takes only to high-water mark.[71] And the courts of Connecticut lay down the rule that riparian owners take to high-water mark on navigable streams and to the middle of nonnavigable streams.[72] In the State of Illinois riparian owners are entitled to all accretion.[73] The Missouri court holds that an accretion to an island in the Mississippi river belongs to the owner of the island and not to the owner of the shore opposite.[74] It is held in New York that where land is diverted by artificial means and not imperceptibly, from the land of the proprietor bounded by low-water mark,

[69]Olson v. Huntamer, 6 S. Dak. 364, 61 N. W. 479.

[70]Mitchell v. Smale, 140 U. S. 406, 35 L. ed. 442, 11 Sup. Ct. 840; St. Paul & Pacific Ry. Co. v. Schurmeier, 7 Wall. (U. S.) 272, 19 L. ed. 74; Warren v. Chambers, 25 Ark. 120, 91 Am. Dec. 538, 4 Am. Rep. 23; Fuller v. Dauphin, 124 Ill. 542, 16 N. E. 917, 7 Am. St. 388; Ridgway v. Ludlow, 58 Ind. 248; Lamprey v. Metcalf, 52 Minn. 181, 53 N. W. 1139; Ledyard v. Ten Eych, 36 Barb. (N. Y.) 102; Cook v. McClure, 58 N. Y. 437, 17 Am. Rep. 270; Gouverneur v. Ice Co., 134 N. Y. 355, 31 N. E. 865, 18 L. R. A. 695, 30 Am. St. 669

[71]St. Louis I. M. Ry. v. Ramsey, 53 Ark. 314, 13 S. W. 931, 8 L. R. A. 559, 22 Am. St. 195.

[72]Welles v. Bailey, 55 Conn. 292, 10 Atl. 565, 3 Am. St. 48.

[73]Lovingston v. St. Clair, 64 Ill. 56, 16 Am. Rep. 516.

[74]Tatum v. St. Louis, 125 Mo. 647, 28 S. W. 1002.

he acquires no title to the derelict bed of the stream.[75] The term high-water mark has been the subject of many decisions of the courts. When a court has decided that a proprietor takes to high-water mark, where is the boundary line? Evidently it is not the line of the very highest point to which the water has reached in times of great freshets for this would frequently take a large part of the farms of many owners. High-water mark is said to be found by ascertaining where the presence and action of water are so usual and long continued in ordinary years as to mark upon the soil of the bed of the stream or body of water a character distinct from that of the bank in respect to vegetation and the nature of the soil.[76] So if the bank or bed rather is wrested of vegetation it is evident that such part is below high-water mark.

§ 316. **Boundaries between owners of accretion.**—We have dealt quite at length on the matter of the division of accretion between riparian owners in other parts of this chapter. Some of the cases called for peculiar and complicated rules for the division thereof. The peculiar and novel partitions, of course, were intended to do justice between the several owners of shore line under the peculiar circumstances. The question to be solved in each case was an equitable division of the accretion or of the old and new shore line between the several owners. While general rules have been laid down by the courts, as we have seen, which will be followed insofar as possible, yet each case must be solved largely on its merits. The rules to be applied in view of the circumstances. The Supreme Court of Connecticut has laid down the rule that accretion formed on the shore of a stream should be divided between the riparian owners by drawing direct lines from

[75]Halsey v. McCormick, 18 N. Y. 147.

[76]St. Louis I. M. & S. Ry. v. Ramsey, 53 Ark. 314, 13 S. W. 931, 8 L. R. A. 559, 22 Am. St. 195; Houghton v. Chicago &c. R. Co., 47 Iowa 370; Howard v. Ingersoll, 13 How. (U. S.) 381, 14 L. ed. 189.

the points of the intersections of the boundary lines with the old shore line to the center or thread of the stream and at right angles thereto.[77] And the courts of Kentucky say: "Riparian owners of land fronting on the Ohio river are entitled to the land added thereto by accretion, to be ascertained by extending the original river frontage of the respective lots as nearly as practicable at right angles with the course of the river to the thread of the stream."[78] In the diagram

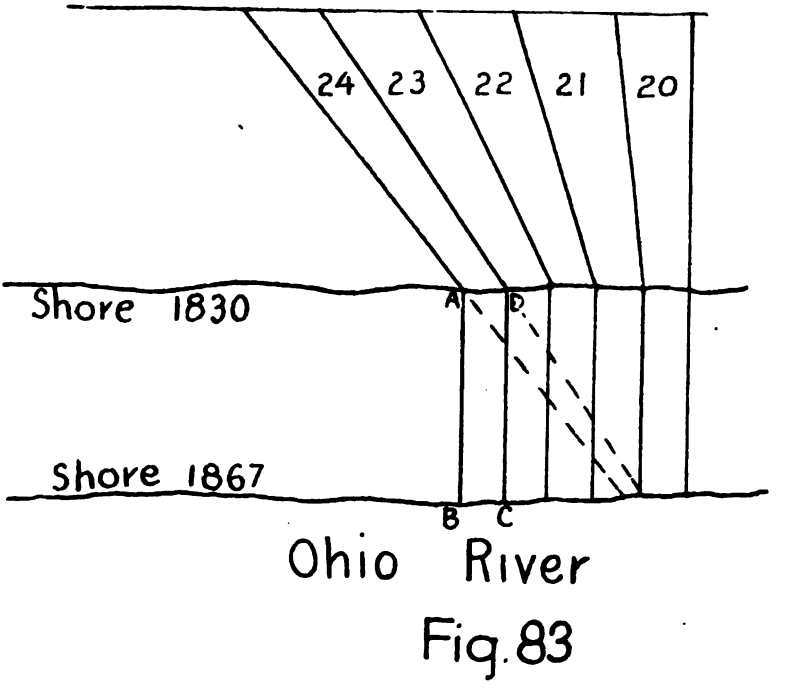


Fig. 83

Fig. 83, the dotted lines represent the boundaries as claimed by the owner of lot 24. The court held the proper boundary to be as represented by the lines AB and CD. See also Fig. 65.

[77]Welles v. Bailey, 55 Conn. 292, 10 Atl. 565, 3 Am. St. 48.

[78]Miller v. Hepburn, 8 Bush. (Ky.) 326.

§ 317. Island and main shore.—Where the place occupied by an island in a lake was marked upon the plat of the government survey of 1851, as "Bayou," but the island was shown to have existed before the government survey, and had since, by accretion, become joined to the main land, held that the owner of the land to which said island had become joined was not entitled to said island as an accretion to his land. In such case the alluvial deposits should be equally divided between the respective owners of the island and of the portion of the main land to which it had become joined.[79] See Fig. 72.[80] Where one of two adjoining owners of a cove fills in the cove in front of his land and of the adjoining owner the general rule applies as for the division of accretion, and where the general course of the shore is a straight line, division is made by a line drawn from a point on the shore line intersected by the boundary line to the general course of the middle of the stream and perpendicular thereto.[81] But where the shore line curves the division lines will either converge or diverge depending whether such line be convex or concave. In any event the old and new shore lines should be measured and each owner given a proportionate part of the new shore line as compared with the old shore line.[82] In connection see Fig. 53; also read the text referring thereto.[83] In Michigan a grant of land bounded by a stream, whether navigable in fact or not, carries with it the bed of the stream to the center of the thread thereof.[84] In the Butler case cited above, in the

[79]Bigelow v. Hoover, 85 Iowa 161, 52 N. W. 124, 39 Am. St. 296.

[80]Benson v. Morrow, 61 Mo. 345.

[81]Watson v. Horne, 64 N. H. 416, 13 Atl. 789.

[82]Watson v. Horne, 64 N. H. 416, 13 Atl. 789.

[83]Northern Pine Land Co. v. Bigelow, 84 Wis. 157, 54 N. W. 496; ante § 254.

[84]Grand Rapids & I. Ry. v. Butler, 159 U. S. 87, 40 L. ed. 85, 15 Sup. Ct. 991, 16 Am. Rep. 242; Turner v. Holland, 65 Mich. 453, 33 N. W. 283; Grand Rapids v. Powers, 89 Mich. 94, 50 N. W. 661; Janesville v. Carpenter, 77 Wis. 288, 46 N. W. 128.

original government survey four islands only were surveyed and meandered in Grand River; patents were issued to the grantors of Butler to the shore property immediately thereafter and with reference to the original survey. Twenty-five years thereafter, on application, the government surveyed another small island in the river opposite the lands of Butler, and which he claimed as a part of his riparian rights, and a patent was issued to the plaintiff railway company. It was not claimed there was any fraud or mistake in the original survey. The court properly held that island No. 5 belonged to Butler as a riparian owner of the shore opposite. Had there been any fraud or mistake in the original survey by which island No. 5 was omitted from the survey it would vitiate the same and the government could, on discovery of such fraud or mistake, order a new survey. This is clearly the rule sustained by eminent authority.[85] And the Massachusetts court holds that the proprietors of the bank of a river, not navigable, own respectively the soil to the middle of the river, subject to the rights of the public to pass over the stream.[86] And that court holds that an island in a river, not navigable, (not otherwise appropriated according to the rules of law) if altogether on one side of the dividing line, or *filum acque*, belongs to the owner of the bank on that side; if in the middle of the river, it belongs in severalty to the owners of the banks on each side; and the dividing line will run in the same manner as if there were no island in the river.[87] And the court in the latter case says at page 270: "The common law recognizes an important distinction, as to the use of waters and the property of the soil, between rivers or waters navigable, and those which are not navigable. The former invariably and exclusively be-

[85]Security Land & Exploration Co. v. Burns, 87 Minn. 97, 91 N. W. 304; Grand Rapids & I. Ry. Co. v. Butler, 159 U. S. 87, 40 L. ed. 85, 15 Sup. Ct. 991, 16 Am. Rep. 242.

[86]Ingraham v. Wilkinson, 4 Pick. (Mass.) 268, 16 Am. Dec. 342.

[87]Ingraham v. Wilkinson, 4 Pick. (Mass.) 268, 16 Am. Dec. 342.

longs to the public, unless acquired from it by individuals under grant or prescription. The latter are held to belong to those whose land borders on the waters." Other cases are to the same effect.[88]

§ 318. **Course of stream changing.**—Many nice questions have arisen in controversies over lands left as a result of a stream changing its course. In some states there is a difference in the decisions as applied to navigable and nonnavigable streams, while, in others, the rules are the same. It has been held in Massachusetts that if the course of a stream, not navigable, changes and cuts off a point of land on one side, making an island, such island belongs to the original owner.[89] In such case, if the old bed of the river, being gradually deserted by the current, fills up and new land is formed, such newly formed land belongs to the opposite riparian proprietors respectively to the thread of the old river.[90] And if a new island be formed in the river, above said island to which reference is made in the Hopkins Academy case, and independent of said island and not by a slow, gradual and insensible accretion to it, such new land above belongs to the opposite riparian proprietors respectively to the *filum aquæ,* or thread of the stream.[91]

§ 319. **How to find center of thread of stream.**—The cases speak of the "thread of the stream" and the "center of the stream" in discussing the rights of riparian owners to accretion or to the beds of streams. The courts do not all agree on what is the thread or center of the stream, or how to find the center of thread of the stream. Some courts hold that the thread of the stream is the geographical center; others that the center of thread of the stream is the center of the main

[88]Deerfield v. Arms, 17 Pick. (Mass.) 41, 28 Am. Dec. 276.

[89]Hopkins Academy v. Dickinson, 9 Cush. (Mass.) 544.

[90]Hopkins Academy v. Dickinson, 9 Cush. (Mass.) 544.

[91]Hopkins Academy v. Dickinson, 9 Cush. (Mass.) 544.

channel of the river as it flows naturally.[92] It is evident that the two would not coincide in one time in twenty, and it is also evident that whichever method be adopted of ascertaining the center, there would be a change from time to time in the location of that center as the main current or as the banks changed. The Massachusetts court has laid down the following rule for determining the thread of the stream:[93] "In ascertaining the thread of the river, it will be proper to take the middle line between the shores upon each side, without regard to the channel, or lowest and deepest part of the stream. And in ascertaining the shore, or water line on each side, to measure it, it will be proper to find where those lines are when the water is in its natural or ordinary stage, at a medium height, neither swollen by freshets or shrunk by draught." However the author would suggest that, upon a careful reading of the authorities, he is firmly convinced that the great weight of authority is to the effect that the "thread of the stream" means the "center of the main channel" thereof.[94] And why should this not be the thread of the stream? That point can always be ascertained. It does not take into consideration bayous or offshoots or similar conditions.

§ 320. **Right to accretions depends on conditions at date of grant.**—What rights has a riparian owner? Where was the original bank of the stream? In parting off land adjacent to a stream to what point must the computation of area be made? If a description be made in an early day, and later by many years, a survey be made after the banks have washed away, and it is necessary to part off a certain area, to what point should the measurements be made? These and kindred questions are frequently arising and the surveyor should know what the courts have held with reference thereto. The United

[92]Franzini v. Layland, 120 Wis. 72, 97 N. W. 499.

[93]Hopkins Academy v. Dickinson, 9 Cush. (Mass.) 544, 552.

[94]Franzini v. Layland, 120 Wis. 72, 97 N. W. 499.

States Supreme Court has held that the right which the owner of a water lot has to the accretion in front of it, depends on its condition at the date of the deed which conveyed him the legal title.[95] We think this is the general rule, as the parties must have contracted with reference to conditions as they then existed. And it has been held that where the land is patented to a riparian owner by the United States and a part of the land is thereafter washed away, but is afterwards restored by accretion so as to include the lines described in the original patent the owner acquires title to the limits, at least, of the original lines.[96] In this case a considerable part of the riparian owner's land had washed away and was subsequently restored so as to replace the entire tract lost, excepting as to a slough which was left running across the tract, and within the limits of the original lines.

§ 321. **Revulsion of river—Boundary remains unchanged.** —Where a river changes its course by revulsion or suddenly and perceptibly it is the rule that the boundary does not change but remains as it was before such change. And it is laid down by the Missouri court that where by revulsion a river entirely forsakes its channel and forms a new one the boundary line of the adjacent land remains unchanged. Furthermore it is said that the owner of the bank on the Missouri river is not the owner of an island which springs up in the middle of the river, whether the island be on the one or the other side of the thread of the stream.[97] This is on the theory that on navigable streams, according to the American doctrine, the beds belong to the state and the riparian owners do not take to the thread of the stream. And that court holds that in a grant of land from the government the grantee took only to the water's edge and not to the middle of the stream.[98] And the court in that

[95]Johnston v. Jones, 1 Black (U. S.) 209, 17 L. ed. 117.

[96]Minton v. Steele, 125 Mo. 181, 28 S. W. 746.

[97]Cooley v. Golden, 117 Mo. 33, 23 S. W. 100.

[98]Cooley v. Golden, 117 Mo. 33, 23 S. W. 100.

case further holds that, where in such case, by accretions to the island, which was in the river at the time of the original survey, but was not surveyed, its water margin unites to the main shore, the newly made land becomes a part of the island and not of the main land, and the riparian ownership of the bank of the main land was not extended. It is also said that the fact that the government, by its rulings, holds that it conveys all of the interest to the soil in the channel where it conveys the shore, yet the extent of the grant depends entirely on the state law. This latter principle is the universal rule, unless the government has made reservations in its grants or there has been fraud committed or there has been a mistake as herein stated.

To the end that the case of Cooley v. Golden cited herein be made plain we furnish two diagrams representing the situation. See Figs. 84 and 85. Fig. 84 shows the Missouri river as it was at the time of the original survey in 1846. It also shows the cut-off made in 1867, at a time when the river was very high and the water rushed through at the bend and formed a new channel and the river has ever since flowed in the new channel, leaving the old channel dry to a large extent, the entire width, a mile or more, and several miles in length. At the time of the original survey there was an island in the north bend of the river designated on the plan, Fig. 84, by the letter O, though this island was never surveyed. After the forming of the new channel there were several sloughs left in the bed of the old stream as indicated in Fig. 85. While we designate on the diagrams the lands as claimed by the plaintiff, thus, "Plaintiff," yet, as a matter of fact the lands were the lands of plaintiff's lessor. Still this will make no difference with the issues. The lands of plaintiff are designated on Fig. 85, and were patented to plaintiff's lessor or his grantor in about the year 1860. That interest owned the shore both north and south of the original stream as it flowed before the

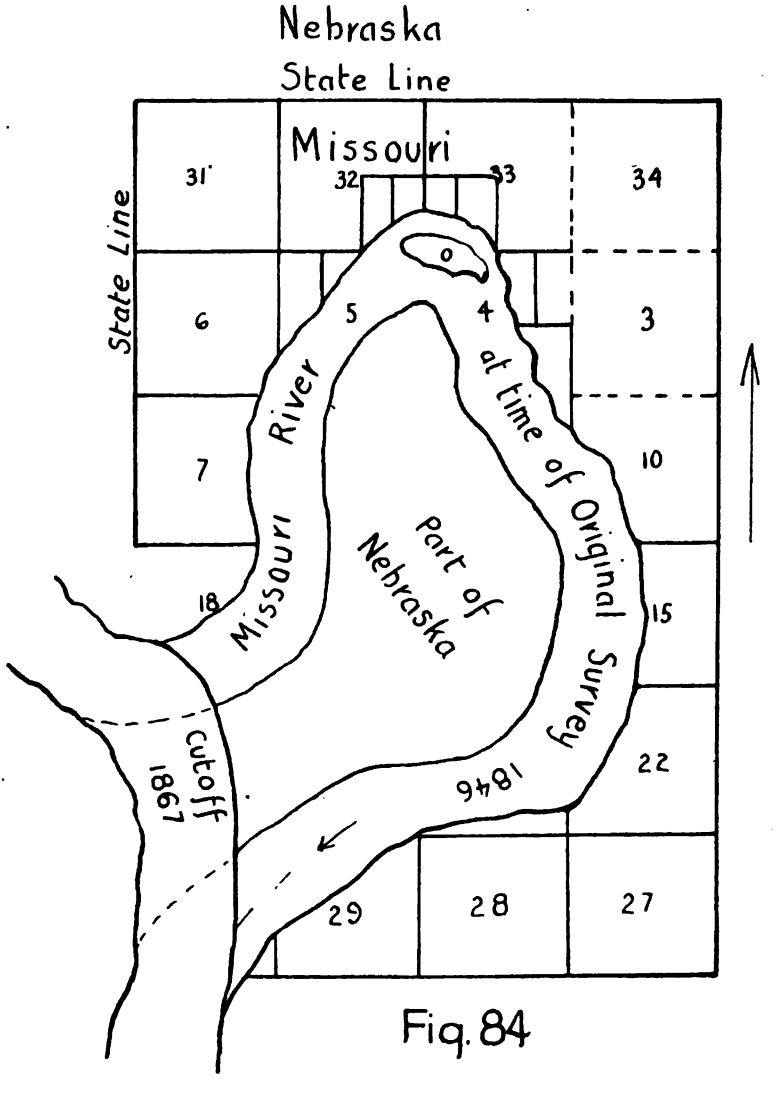


Fig. 84

cut-off. Soon after the change of channel the defendant's grantor squatted on the tract, ABCDEA, Fig. 85, built fences thereon, and farmed it for many years. The squatters first

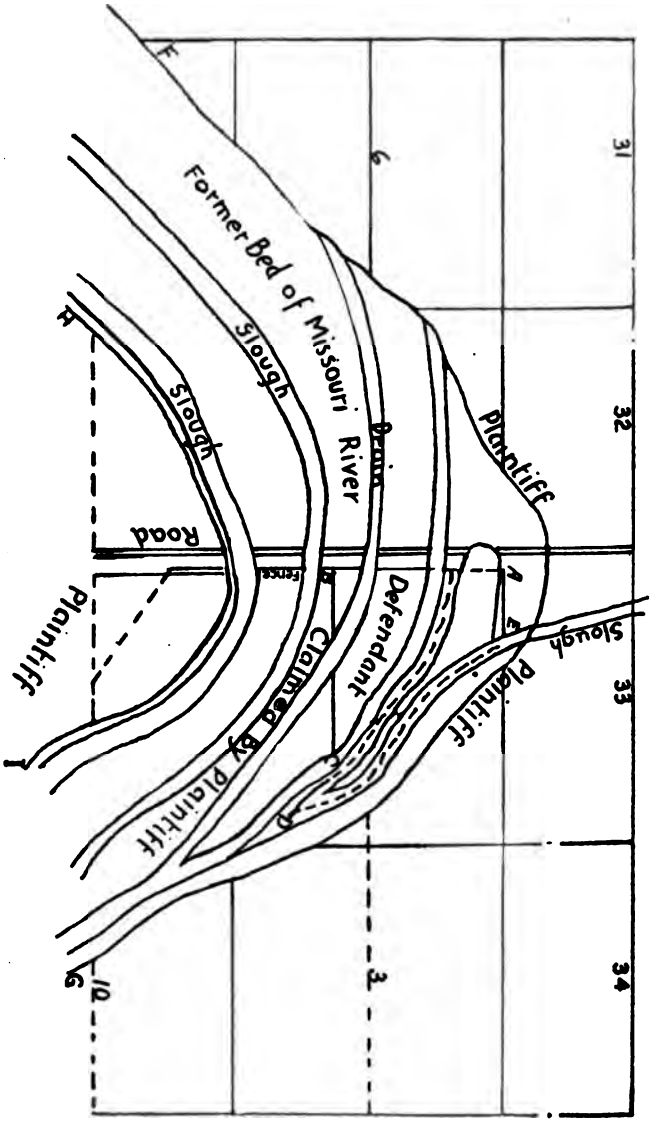

F
Former Bed of Missouri River
Slough
Slough
Road
Fence
Plaintiff
Claimed by Plaintiff
Defendant
Bank
Plaintiff
Slough
Plaintiff
6
31
32
33
34
3
10
5

Fig. 85

took possession of Pole Island in about the year 1861. It was deeded several times and, after the change of the channel, their possession was extended southerly to the point B. The defendant's grantor purchased the land in 1868, from another squatter and he and his grantors continued in possession up to the time of the litigation. The plaintiff's lessor built fences in 1886, south of the river as indicated by dotted lines and this fence was extended north across the center of the old channel and near the road. The plaintiff's lessor claimed all of the bed of the old channel left dry as accretion to his riparian rights on both sides of the original stream. The action was for the recovery of about two hundred and seventy acres of unsurveyed land designated on Fig. 85 by the letters ABCDEA. It was held that the plaintiff's lessor had no rights in any part of the old bed of the stream and judgment was for defendant. Undoubtedly the ruling would be different in those states which held that the riparian owner on a navigable or nonnavigable stream takes to the center of the stream subject to the rights of the public to pass over the stream. Hence, it is quite necessary that the professions be familiar with the ruling of the highest court of the particular state on the rights of a riparian proprietor to the end that a correct conclusion be arrived at in a given case.

§ 322. **Division of long irregular lake bed.**—The Supreme Court of Minnesota, in the case of Rooney v. County of Stearns,[99] had up for consideration the matter of the division among the various riparian owners of the dry bed of a long, irregular lake. While the case was one concerning drainage yet the main question before the court was one concerning the proper method of apportioning the dry bed of a lake which had been drained. The lower court made a division by ascertaining the center and dividing the bed by the so-called "pie

[99]Rooney v. Stearns County, 130 Minn. 176, 153 N. W. 858.

cutting" method, which had been approved in an earlier case, in the division of a substantially round lake.[1] The appellate court reversed the lower court and remanded the case for a new trial. At page 180 the court says: "We also observe that the lake is so long and irregular in shore line that a distribution of the bed by the 'pie cutting' method will result in palpable injustice." And the court suggests that the method shown in Fig. 86 should be followed in a division of the bed. Referring to the division of the bed of a stream as applied to a long lake the court at page 180 says: "We do not think the absence of an actual flowing stream, produced by an inlet and outlet, render improper the application of the rule that this lake bed should be divided like the bed of a running stream. It is clear enough from former decisions involving the ownership of lake beds, that no hard or fast rule can be applied. Each case must, in a large measure, depend on the shape and character of the lake and the shore line."[2] The court in the Rooney case[3] quotes from Hardin v. Jordan as follows: "Where a lake is very long in comparison with the width, the method applied to rivers and streams would probably be the most suitable for adjusting riparian rights in the lake bottom along its sides and the use of converging lines would only be required at its two ends." Nevertheless we believe that converging lines would be necessary in the division of the bed of a long lake.

§ 323. **Title to bed and shores of water ways.**—It will be seen from what has already been said relative to this interesting and complex matter that the authorities are in great con-

[1]Scheifert v. Briegel, 90 Minn. 125, 96 N. W. 44, 63 L. R. A. 296, 101 Am. St. 399; ante § 301.

[2]Lamprey v. State, 52 Minn. 181, 53 N. W. 1139, 18 L. R. A. 670, 38 Am. St. 541; Hanson v. Rice, 88 Minn. 273, 92 N. W. 982; Scheifert v. Briegel, 90 Minn. 125, 96 N. W. 44, 63 L. R. A. 296, 101 Am. St. 399, Burton v. Isaacson, 122 Minn. 483, 142 N. W. 925.

[3]Hardin v. Jordan, 140 U. S. 371, 35 L. ed. 428, 11 Sup. Ct. 838.

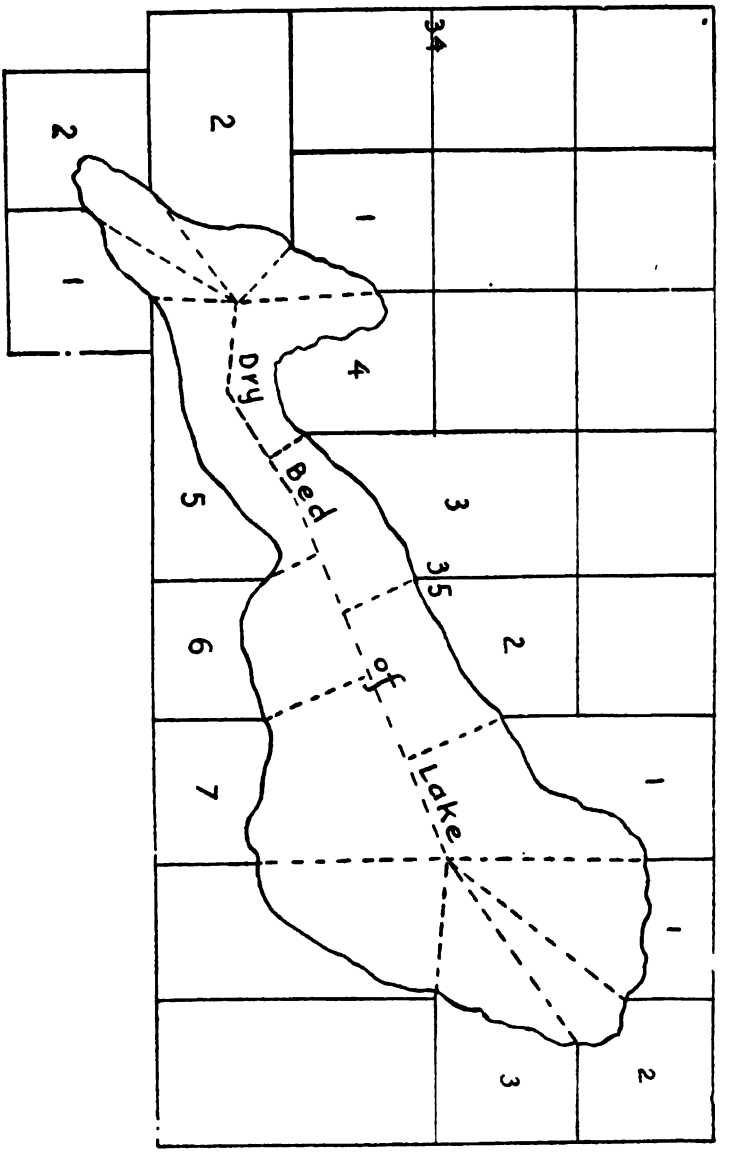


Fig. 86

fusion. As we have seen some states hold that the state owns the beds of all navigable streams;[4] others hold that the federal government owns those beds, but this is so probably only in case of a reservation, and still others hold that the riparian proprietor owns that bed subject to the right of the public to pass over the waters.[5] Undoubtedly this great difference came about, in part, by reason of the difference in the definition of a navigable stream at common law and one within the meaning of the decisions of the courts of the United States. Then, too, the old idea was that the king owned all of the lands of his domain and that he might barter them away as he saw fit. This doubtless had its influence in determining the rights of individuals, the rights of the state, and the rights of the federal government in the beds of lakes and streams. In the old days the barons secured vast grants from the king. Under these grants the Baron took possession of the shores and beds of lakes and streams and claimed to be the owner thereof. The general understanding was that the beds of streams belonged to the riparian owner and not to the crown.[6] Strenuous efforts were made to overturn this principle and to get an adjudication that after a grant from the crown, of lands on waters, the crown remained the owner of the beds and shores of streams.[7] Out of the agitation grew the principle, well established, that the public has a right of passage and repassage over the waters, which must not be obstructed by nuisances, such as wharves, docks, or booms. Still this left the title of the beds of those streams in the riparian owner subject to the public rights to pass over those waters.[8] Naturally this was the forerunner of two lines of decisions in this country as to the rights of the riparian owner in the beds of navigable streams and other

[4]Musser v. Hershey, 42 Iowa 356.

[5]Norcross v. Griffiths, 65 Wis. 599, 27 N. W. 606, 56 Am. Rep. 642.

[6]I Farnham Waters and Water Rights, page 168.

[7]Attorney General v. Richards, 2 Anstr. 603, 3 Rev. Rep. 632.

[8]I Farnham Waters and Water Rights page 167,

waters. Both lines of decisions are based on the common law or traced to the common law for their basis. We feel, therefore, that we should take up the two lines of authorities from the several states and analyze them. Farnham lays down the general rule as follows: "In general it may be said that as between the riparian owner and the public the title to beds of all nonnavigable streams and the beds of small lakes is in the individual."[9]

§ 324. **Laws of state determine extent of riparian proprietor's rights.**—It may be laid down as the universal rule that, unless there are reservations or exceptions in the grant from the government, the laws of the state determine the extent of the ownership of the riparian proprietor on navigable streams. This ownership is either: 1. To high-water mark; 2. To low-water mark; 3. To center of stream.[10]

The rules in the various states are in great confusion as to the extent of the rights of the riparian owner in the soil of the bed of navigable streams. In some states it is held that the riparian owner takes title to the soil in the bed of the stream subject to the right of the public to pass over the same. In others he takes to high-water mark only, and in still others to low-water mark. It is sometimes said that "Lands bounded by a stream are presumed to extend to the center of the stream unless restricted by the grant or a contrary intent appears.[11] And the courts of Maine have held that the owner of land adjoining tide water prima facie owns to low-water mark, unless shown to the contrary.[12]

Alabama. The owner of land on a navigable stream, above

[9]1 Farnham Water and Water Rights § 36.

[10]Packer v. Bird, 137 U. S. 661, 34 L. ed. 819, 11 Sup. Ct. 210; St. Louis v. Rutz, 138 U. S. 226, 34 L. ed. 941, 11 Sup. Ct. 337.

[11]Avery v. Fox, Fed. Cas. No. 674, 1 Abb. (U. S.) 246.

[12]Snow v. Mt. Desert I. Real Estate Co., 84 Maine 14, 24 Atl. 429, 17 L. R. A. 280, 30 Am. St. 331.

tide water, which is recognized as a highway, has no title to the soil in the bed thereof.[13]

California. The right of the state to lands under water, where the tide ebbs and flows, is founded upon her sovereign control over the easement or right of navigation, and where the easement is destroyed, the right of the state ceases, except to prosecute for purpresture, and have the easement restored.[14] It will be noted that the last case referred to tide waters and hence that rule would not apply to navigable streams.

Connecticut. The owners of land upon a nonnavigable river own to the middle of the bed thereof, and if the stream be navigable they own to high-water mark.[15] The river in the above cause was the Connecticut and at the point in question, the tide ebbed and flowed. Hence it is clear that the Connecticut court at that time regarded rivers as navigable only where the tide so ebbed and flowed. The court says, (316): "If a particular tract was entirely cut off from a river by an intervening tract, and that intervening tract should be gradually washed away until the remoter tract was reached by the river, the latter tract would become riparian as much as if it had been originally such."[16]

Florida. A grantee of the upland does not necessarily take the land below high-water mark it is said.[17]

Illinois. The title of a riparian owner bounded by a navigable slough of the Mississippi river, extends to the middle of the slough and includes unsurveyed islands separated from the main land, which lie between the main land and the center of the slough.[18] The owners of tracts of land on the opposite sides of a meandered stream own the soil under the stream

[13]Bullock v. Wilson, 2 Port. (Ala.) 436.

[14]Guy v. Hermance, 5 Cal. 73, 63 Am. Dec. 85.

[15]Welles v. Bailey, 55 Conn. 292, 10 Atl. 565, 3 Am. St. 48.

[16]Peuker v. Canter, 62 Kans. 363, 63 Pac. 617; ante § 249.

[17]Axline v. Shaw, 35 Fla. 305, 17 So. 411, 28 L. R. A. 391.

[18]Fuller v. Dauphin, 124 Ill. 542, 16 N. E. 917, 7 Am. St. 388.

respectively to the center, subject to the public rights of navigation.[19]

Indiana. The title to the soil of the beds of nonnavigable streams is in the riparian owner.[20]

Iowa. The soil in the beds of all meandered and navigable streams belongs to the state within which they lie and the riparian owners take to high-water mark.[21]

The soil of the beds of nonnavigable streams belong to owners of the shores thereof.[22] In the state of Iowa, the courts hold that the state owns the beds of navigable streams and lakes and that the riparian owner takes to high-water mark only, and this holding is reflected in the decisions of the United States Supreme Court in cases appealed to that court from Iowa courts.[23]

Kentucky. The boundary of the state of Kentucky on the Ohio river extends only to low-water mark.[24] But a riparian proprietor owns to the middle of the stream.[25]

Louisiana. Property bounded by, "in front by the Mississippi river," and in the rear by a named street, "together with the privileges and appurtenances thereto belonging or in anywise appertaining," is entitled to the accretion to such property.[26]

Michigan. The courts of Michigan hold to the rule that the soil of the beds of inland lakes in that state belongs to the riparian owner, and not to the state.[27]

Minnesota. The riparian owner on a navigable water takes

[19]Washington Ice Co. v. Shortall, 101 Ill. 46, 40 Am. Rep. 196.

[20]Ross v. Faust, 54 Ind. 471, 23 Am. Rep. 655.

[21]Musser v. Hershey, 42 Iowa 356; Barney v. Keokuk, 94 U. S. 324, 24 L. ed. 224.

[22]Moffett v. Brewer, 1 G. Greene (Iowa) 348.

[23]Barney v. Keokuk, 94 U. S. 324, 24 L. ed. 224.

[24]Handly's Lessee v. Anthony, 18 U. S. 374, 5 L. ed. 113.

[25]Strange v. Spaulding, 17 Ky. L. 305, 29 S. W. 137.

[26]Kennedy v. Municipality No. 2, 10 La. Ann. 54.

[27]Clute v. Fisher, 65 Mich. 48, 31 N. W. 614.

title to high-water mark only.[28] But the court in that case, page (520-1)' says: "While the title of a riparian owner on navigable or public waters extends to ordinary low-water mark, yet it is unquestionably true that his title is not absolute, except to ordinary high-water mark." And as to the intervening space "the title of the riparian owner is qualified or limited to the public right." And again (521) "within the banks, and below high-water mark, the public right is supreme." The rights of riparian owners on the banks of Lake Minnetonka, a navigable lake of large size, in Hennepin County, Minnesota, was before the court for consideration in the Carpenter case.

Missouri. A riparian proprietor on a navigable stream holds only to the water's edge. A part of a fractional section belonging to plaintiff washed away and a "towhead" formed in the river between plaintiff's land and an island opposite thereto, and land gradually accrued to the "towhead" and extended toward plaintiff's lands and within the limits of his original boundary. It was held that the land was not an accretion to the plaintiff's lands.[29]

New Hampshire. Where the channel of a river has been gradually wearing away the soil on defendant's side of a river and land has been gradually forming on the opposite shore owned by the plaintiff, the channel so formed must be regarded as the true channel and plaintiff will be the owner of the land so formed to his shore as an accretion.[30]

New Jersey. So too, the state of New Jersey holds substantially to the same rule.[31] And it is said the soil under navigable waters was not granted to the United States but was reserved to the respective states at the close of the Revolu-

[28]Carpenter v. Hennepin, 56 Minn. 513, 58 N. W. 295.

[29]Cox v. Arnold, 129 Mo. 337, 31 S. W. 592, 50 Am. St. 450.

[30]Gerrish v. Clough, 48 N. H. 9, 97 Am. Dec. 561, 2 Am. Rep. 165.

[31]Stevens v. Patterson & N. Ry. Co., 34 N. J. L. (5 Vroom) 532, 3 Am. Rep. 269.

tionary War.[32] New Jersey holds that the state owns the fee to the soil under water between the exterior lines of piers and the state line in the Hudson river.[33]

New York. The state owns the soil of the beds of bays opening in to the sea.[34] And title to the soil of the beds of waters in which the tide ebbs and flows is in the state as successor of the king.[35]

North Carolina. North Carolina holds that riparian owner owns to the middle of the stream subject to public rights.[36]

Ohio. Substantially the same rule has been laid down in Ohio as in North Carolina where riparian proprietor owns to the middle of stream.[37]

Oregon. Where a navigable river was meandered in making the government survey and the United States has granted the land bounded by the meandered line, the grantee takes to the river. The stream and not the meander line is the true boundary. Accretion to such land belongs to the riparian owner.[38]

Pennsylvania. The bed and channel of the Delaware river belong respectively to the states of Pennsylvania and New Jersey.[39] And the same case holds that the title of the riparian owners extends only to low-water mark. And again all title to beds of navigable streams below low-water mark belongs to the state.[40]

Tennessee. Accretion to the main shore belongs to the owner of the shore. The riparian owner is entitled to all accretion and to follow the river to low-water mark. In this

[32]Pollard's Lessee v. Hagan, 44 U. S. (3 How.) 212, 11 L. ed. 565.

[33]Attorney General v. Hudson Tunnel R. Co., 27 N. J. Eq. 176.

[34]Smith v. Levinus, 8 N. Y. 472.

[35]People v. New York &c. Co., 68 N. Y. 71.

[36]Hodges v. Williams, 95 N. Car. 331, 59 Am. Rep. 242.

[37]Walker v. Board of Public Works, 16 Ohio 540.

[38]Minto v. Delaney, 7 Ore. 337.

[39]Tinicum Fishing Co. v. Carter, 61 Pa. St. 11, 100 Am. Dec. 597; Simpson v. Neill, 89 Pa. St. 183.

[40]Simpson v. Neill, 89 Pa. St. 183.

case the description was: "246 chains and 6 links to a cottonwood tree marked W & C on the banks of a chute of the Mississippi river, thence down said river with its meanderings south," etc.[41]

Texas. Accretion by alluvium belongs to the riparian owner. This principle applies to lands bordering on navigable and nonnavigable streams. A description calling for the Rio Grande and its meanderings as one of the boundaries of the tract will follow the shore as it may be changed by gradual and imperceptible means.[42] An island lay in the center of a stream and the main channel thereof divided and passed, about equally, on both sides of the island. Plaintiff and defendant were the owners of opposite shores. It was held that the island belonged to the two claimants and that the boundary line between them should be run through the center of the island.[43]

Vermont. A riparian owner on a nonnavigable stream takes title to the soil of the bed of such stream to the center of the stream, and a flat in front of riparian owners along said stream is to be divided by extending a line from the division line between the riparian owners at the old bank to the nearest point on the new shore line.[44]

Wisconsin. The owner of the bank of a navigable stream by purchase from the government is presumed to be the owner of the bed of the stream to the middle thereof, but if title be acquired from private person this presumption is not conclusive.[45] Where the government makes a survey of several islands in a navigable river, omits to survey one of such islands,

[41]Posey v. James, 75 Tenn. (7 Lea) 98.

[42]Denny v. Cotton, 3 Tex. Civ. App. 634, 22 S. W. 122.

[43]Strange v. Spaulding, 17 Ky. L. 305, 29 S. W. 137.

[44]Hubbard v. Manwell, 60 Vt. 235, 14 Atl. 693, 6 Am. St. 110.

[45]Norcross v. Griffiths, 65 Wis. 599, 27 N. W. 606, 56 Am. Rep. 642; Delaplaine v. Chicago &c. Ry. Co., 42 Wis. 214, 24 Am. Rep. 386; Walker v. Shepardson, 4 Wis. 486, 65 Am. Dec. 324.

and sells all of the islands which were surveyed and the lands on both sides of the river, the unsurveyed island will go to that riparian owner on the side of the river with reference to the main channel.[46] The state of Wisconsin holds to the rule that the state is the owner in trust for legitimate public use of the beds of its navigable lakes, and that it can not convey that right for private use, nor can it abdicate the trust.[47] It further holds that a pier may be erected by a riparian owner in aid of navigation through shoal water to navigable water.[48] If a party, not a riparian owner, builds a pier into a navigable lake, it may be abated at the suit of the attorney general, though such pier does not interfere with navigation.[49] But as we have seen the same court holds that a riparian owner takes to the center of the Mississippi river,[50] and that is the rule in that state as to beds of navigable streams.

§ 325. **Division by bisecting angle between curved shores.** —In the state of Maine and some other jurisdictions the courts have adopted the following rule for the division of flats, or which is the same thing, accretion: To divide flats between adjoining riparian proprietors, draw a base line from one corner of each lot to the other and run a line from each end of this line at right angles to low-water mark. If by reason of the curvature of the shore, the lines diverge or conflict with each other the gain or loss is to be divided equally between adjoining lot owners by bisecting the angles made by the di-

[46]Chandos v. Mack, 77 Wis. 573, 46 N. W. 803, 20 Am. St. 139, 10 L. R. A. 207.

[47]Hicks v. Smith, 109 Wis. 540, 85 N. W. 512; McLennan v. Prentice, 85 Wis. 427, 55 N. W. 764; Priewe v. Improvement Co., 93 Wis. 534, 67 N. W. 918, 33 L. R. A. 645; Mendota Club v. Anderson, 101 Wis. 479, 78 N. W. 185; Village of Pewaukee v. Savoy, 103 Wis. 271, 79 N. W. 436, 50 L. R. A. 836, 74 Am. St. 859.

[48]Hicks v. Smith, 109 Wis. 540, 85 N. W. 512.

[49]Hicks v. Smith, 109 Wis. 540 85 N. W. 512.

[50]Ante § 252; Franzini v. Layland, 120 Wis. 72, 97 N. W. 499.

verging, converging or conflicting lines.[51] This is in confirmation of the rule laid down in other states and discussed in another section of this chapter. Fig. 73. However, it will be noted that the object sought by all of the courts is to make an equitable division of the flats between the several riparian proprietors. Bends in a stream frequently necessitate changing the rule or in a variation of the general rule with reference to a division of flats to the end that all riparian owners be treated equitably.[52] And it is said that if the land be situated on a convex shore, the proportional rule should still be followed, and each owner would be entitled to the same proportion upon the outer line that he holds upon the shore line.[53] But the mere fact that a lot is situated upon a headland is not enough to show that, in the division of flats in front of it, the side lines should diverge or converge, as the case may be, in case there be other lots situated adjacent to the lot in question and on the headland, and the shore is not convex.[54]

§ 326. **Partition of land on inland lakes.**—The rules referred to in the preceding section pertain to land bordering on the sea or to lakes of considerable size and it is said that no fixed rule can be laid down relative to the division of lands bordering on small lakes having irregular shore lines. Each case must depend on the facts in that particular instance, and a reasonable division must be arrived at so as to do justice to all of the riparian owners. And it is said in some cases that if the lake is so small as to be enclosed wholly within the division lines of a single section the bed should be divided by the extension of such sectional lines.[55] In that case, the court says: "It therefore becomes apparent that the true and only

[51]Emerson v. Taylor, 9 Maine 42, 23 Am. Dec. 531; Treat v. Chipman, 35 Maine 34.

[52]Ludwig v. Overly, 19 Ohio Circ. Ct. 709, 6 O. C. D. 690.

[53]Morris v. Beardsley, 54 Conn. 338, 8 Atl. 139.

[54]Winnisimmet v Wyman, 11 Allen (Mass.) 432.

[55]Clute v. Fisher, 65 Mich. 48, 31 N. W. 614.

rule to give effect and harmony to these decisions, and place the ownership of the bed of this lake in some person or persons, so that the extent and boundary lines of such ownership may be easily ascertained, is to invest the holder of the title of any fractional subdivision of a section bordering upon this lake with the ownership of the bed of the lake to the lines of subdivision as they would be if continued through or into the lake." This rule is of doubtful force if to be applied generally. It may be equitable to so divide the bed of a small lake lying wholly within the subdivision lines of a single section, but it would, or might, be most inequitable to so divide the bed of a lake lying in more than one section. The same court so decides and lays down the rule: The division of the bed of a small lake, but one of considerable size, "is to be determined without reference to the extension of such lines, but by the principles governing the rights of riparian proprietors."[56] Then the general shape of the lake whether round or long should be considered.[57]

[56]Grand Rapids Ice & Coal Co. v. South Grand Rapids Ice & Coal Co., 102 Mich. 227, 60 N. W. 681, 25 L. R. A. 815, 47 Am. St. 516.

[57]Scheifert v. Briegel, 90 Minn. 125, 96 N. W. 44, 63 L. R. A. 296, 101 Am. St. 399; ante § 301.

CHAPTER XV

RESTORATION OF LOST OR OBLITERATED CORNERS AND SUBDIVISION OF SECTIONS

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§ 327. **Generally.**—In this chapter we quote extensively from a circular issued by the general land office, revised as of June 1, 1909, setting forth fully the instructions of the commissioner thereof to local surveyors, on the restoration of lost or obliterated corners, and the subdivisions of sections.

The practitioner will find the instructions ample in most cases. However, he should, first of all, carefully examine the field-notes of the original survey, in a given case, to ascertain whether it was made under special or unusual instructions of the surveyor-general. If so made, he should take into consideration such special instructions, in applying the rules in this chapter. He will find, in the earlier surveys, that the instructions were not uniform and were executed with less accuracy, than at a later period. Furthermore, in a few cases, he will find that instructions sent out by the acting commissioner to local surveyors were at variance with the law. If sections were subdivided under such erroneous instructions years ago, the local surveyor must take them into consideration and should not disturb lines long abided by, though erroneous. The references will be to "Restoration of Lost or Obliterated Corners," and will be abbreviated thus, "R. L. C."

§ 328. **Special information.**—When a local surveyor desires special information relative to the proper method of restoring lost or obliterated corners marking the government survey of a designated section, when the question presents difficult and unusual problems, he should write the commissioner of the general land office at Washington. Owing to the very large number of inquiries received by that official from county and local surveyors throughout the country, embracing a variety of propositions, he deemed it advisable to formulate and issue advice in pamphlet form to all such inquiries, under the head of "Restoration of Lost or Obliterated Corners, and Subdivision of Sections." This most important document was issued in 1909, and reprinted in 1916, and should be in the

hands of every surveyor. The document is an expression of the land office on that subject, based, of course, upon the several acts of Congress authorizing the surveys of public lands, and the decisions of the federal and state courts. Should the surveyor be unable to secure the desired information from that document or from this work, he should write that official, giving full and exact information as to section, town and range, and clearly set out the information desired. It might be quite desirable to send a diagram of the section or sections under consideration, referring to the corners or lines by letter or number. The citations herein will be to "Restoration of Lost or Obliterated Corners and the Subdivision of Sections." This, however, will be abbreviated, and the citation will appear, "Restoration of Lost Corners," written R. L. C. giving the number of the section to which reference is made.[1]

§ 329. **An obliterated corner.**—"An obliterated corner" within the meaning of that work, is one where there is no visible evidence to be found of its location, as originally established. Still its correct location may have been preserved by acts of adjacent land owners, in building fences or otherwise, and by the memory of those who once knew and now recollect the location thereof. But it is said that a *"lost corner* is one whose position can not be determined, beyond reasonable doubt, either from original marks, or reliable external evidence."[2] The surveyor should not treat a corner as lost until he has exhausted all means of fixing its location aside from the determination thereof, by a measurement to other corners.

§ 330. **Private surveyors.**—Former United States deputy surveyors, now engaged as private surveyors, must act under somewhat different rules of law from those followed in making original surveys. He should distinguish between those provisions which govern a government surveyor and those

[1] R. L. C. 1.
[2] R. L. C. 2

which apply to the retracement of lost lines or re-establishment of lost corners.[3]

§ 331. **Accurate knowledge original survey necessary.**—It is of general knowledge that, in order to properly restore lost boundaries of the public lands, the surveyor should have a substantial accurate knowledge of the manner in which the townships were originally subdivided, and without such information, he can not hope to secure the best results.[4]

§ 332. **Instructions issued.**—It is well known that different sets of instructions were issued by the land department to the public surveyors for the survey of various regions, covering a period from 1785, the date of the adoption of the rectangular system, to the present time. It is said the earlier rules were given to the deputy surveyors in manuscript form or in circulars sent out, and that no copies of these instructions are to be had for distribution. Later, however, these instructions were sent out in book form, covering the years 1855, 1871, 1890, 1894 and 1902. The supply of these, except for the year 1902, is exhausted. The manual of 1902, as well as the advance sheets for the manual of 1919, may be had at cost by writing the superintendent of documents, Washington.[5]

§ 333. **Double sets of corners.**—To the end that the surveyor may have exact information relative to surveys made at different periods to enable him to properly solve difficult problems, we shall briefly review the several acts of Congress pertaining to this subject. It will be noted that compliance with the different acts of Congress covering the period of the earlier surveys to the present time, has resulted in two sets of corners on township lines being established in some instances. In other instances, three sets of corners were established on the range lines. The system now in vogue makes but one set of corners in township boundaries except on base

[3]R. L. C. 3.
[4]R. L. C. 4.
[5]R. L. C. 5.

and correction lines, and in some exceptional cases.[6] The surveyor should bear in mind that where two sets of corners are found on township boundaries, the first set was established at the time the exterior lines of the township were run. Those on the north boundary belong to the sections lying to the north of said line. Those on the west boundary of the township belong to the sections lying to the west of that line. The other set of corners was established at the time the township was subdivided. It will be readily seen that this method resulted in double corners on the four sides of each township.

As noted above, three sets of corners were sometimes established on the range lines. Where this is the case, the subdivisional surveys were made in the same manner, except that the east and west section lines were not closed upon the corners theretofore established on the east boundary of the township, but were run due east from the last interior section corner, and new corners planted at the intersection of that line with the east side of the township.[7]

§ 334. **Method now followed.**—The method now followed is much simpler, where regular conditions are found. In the subdivision of a township, the subdivision lines are initiated at the section corners on the south boundary of the township. Such lines also close on the corners previously planted on the east, north and west boundaries of a township. But when the north boundary is a base line or a standard parallel, new corners are set thereon. These corners are called closing corners. However, in some cases, owing to conditions, such as, in the subdivision of a township in which there is no south boundary or in which it is inaccessible, the subdivisional lines have been initiated on the north boundary of the township and extended southerly.[8] Hence, the local surveyor should have a full knowledge of the methods pursued in the subdivision of

[6]R. L. C. 7.
[7]R. L. C. 7.
[8]R. L. C. 8.

townships by the original surveyor. He should have full notes of the original survey and where his work is along town or range lines, he should have copies of the original plat. Then, again, it will be found that a great many plats do not show the second set of corners, established in the original survey of the adjoining township made subsequently. The utmost care must be used to guard against the confusions of corners.[9]

§ 335. **Limitation on errors.**—In recent surveys, the instructions sent out fix a strict limitation on the amount of errors which will be permitted to stand. Under this rule, no new township exteriors or sectional lines "shall depart from a true meridian or east and west line more than twenty-one minutes of arc; and that when a random line is found liable to correction beyond this limit, a true line on a cardinal course must be run, setting a closing corner on the line to which it closes." It will be noted that new surveys closing on old surveys or irregular work will be fruitful of double corners. The local surveyor who attempts to retrace lines of such surveyors must have full knowledge of all of the conditions surrounding the original surveys, including the "exceptional methods of subdivision."[10]

§ 336. **Initial surveys.**—The first law pertaining to the survey of the public lands was passed by the Congress of the Confederation in 1785. It provided for the survey of the "Western Territory" and authorized that territory to be divided into "townships of six miles square, by lines running due north and south, and others crossing them at right angles" as near as might be. It was provided therein that the first line running north and south should begin on the Ohio river at a point due north from the western terminus of a line run as the south boundary of the state of Pennsylvania. Ordi-

[9]R. L. C. 9.
[10]R. L. C. 10.

narily, this line would be termed the principal meridian. The first line running east and west should begin at the same point and extend westerly through the whole territory. This line would be termed the base line. Only the exterior lines of the townships were then surveyed. The plats, however, were marked showing the subdivision of the townships into sections one mile square. These were numbered from one to thirty-six, commencing with No. 1, in the southeast corner of the township and running from south to north. This brought section 36 in the northwest corner of the township. Mile corners were established on the township lines. This survey forms a part of the present state of Ohio and is known as "the Seven Ranges."[11]

§ 337. **Territory northwest of Ohio river.**—In 1796, Congress passed an act providing for the survey of the "territory northwest of the Ohio River, and above the mouth of the Kentucky River." This act provided in part for dividing such lands as had not theretofore been surveyed "by north and south lines run according to the true meridian, and by others crossing them at right angles, so as to form townships of six miles square," etc. This act also provided that "one-half of said townships, taking them alternately, should be subdivided into sections containing, as nearly as may be, six hundred and forty acres each, by running through the same, each way, parallel lines at the end of every two miles: and by marking a corner on each of said lines at the end of every mile." So, also, we find therein: "the sections shall be numbered, respectively, beginning with the number 1 in the northeast section, and proceeding west and east, alternately through the township, with progressive numbers till the thirty-sixth be completed." It should be noted, this method of numbering the sections is still in use.[12]

[11]R. L. C. 11.
[12]R. L. C. 12.

§ 338. **Townships west of the Muskingum.**—In 1800, the foregoing act was amended by requiring the "townships west of the Muskingum which are directed to be sold in quarter-townships, to be subdivided into half-sections of three hundred and twenty acres each, as nearly as may be, by running parallel lines through the same from east to west, and from south to north, at the distance of one mile from each other, and marking corners, at the distance of each half mile on the lines running from east to west, and at the distance of each mile on those running from south to north. And the interior lines of townships intersected by the Muskingum, and of all townships lying east of that river, which have not been heretofore actually subdivided into sections, shall also be run and marked, * * * and in all cases where the exterior lines of the township thus to be subdivided into sections or half-sections, shall exceed or shall not extend six miles, the excess or deficiency shall be especially noted, and added to or deducted from the western or northern ranges of sections or half-sections in such townships, according as the error may be in running the lines from east to west or from south to north." This act also provided that the northern and western tiers of sections should be sold as containing only the quantity expressed on the plats, and all others as containing the complete legal quantity.[13]

§ 339. **United States military tract in Ohio.**—In 1796, an act was passed, providing for dividing the "United States Military Tract" in Ohio, into townships five miles square, each to be subdivided into quarter townships containing four thousand acres.[14] The act of 1800, amendatory of the act of 1796, authorized the subdivision of the quarter townships into lots of one hundred acres, bounded as nearly as practicable by parallel lines one hundred and sixty perches in length by one hundred perches in width. This subdivision into lots was

[13]R. L. C. 13.
[14]R. L. C. 14.

made on the plats in the office, and the actual survey was only made at a subsequent time when a sufficient number of lots had been located to warrant the survey being made. In many cases when the survey was made, the plat and ground did not agree and fractional lots on plats were entirely crowded out. Hence, it is quite necessary that local surveyors have knowledge of such fact.[15]

§ 340. **Subdividing sections.**—The act of 1805, revised in 1873, directs the subdivision of public lands into quarter sections. It sets forth three principles for ascertaining the boundaries and contents of public lands. A. All corners marked by the surveyor and so returned shall be established as the proper corners of the sections or quarter-sections which they are intended to designate, and corners of half and quarter-sections not marked, shall be established as nearly as possible "equidistant from those two corners which stand on the same line."[16] Lines actually run and marked are established as the "proper boundary lines" of the section and the length of such lines as returned shall be conclusive as to the true length thereof. The boundary lines not run by the government surveyor shall be determined "by running straight lines from the established corners to the opposite corresponding corners." In fractional townships or sections where no opposite corners were or could be established, the boundary lines shall be fixed "by running from the established corners due north and south or east and west" as the case may be "to the water course, Indian boundary line, or other external boundary of such fractional township."[17] The contents of a half-section or any part thereof as returned by the surveyor "shall be held and considered as containing the one-half or the one-fourth part, respectively, of the returned contents of the section of which

[15]R. L. C. 14-15.
[16]R. L. C. 16-17.
[17]R. L. C. 18.

they make a part."[18] The contents as returned are conclusive on subsequent surveys and were so intended.[19] The act further provided that "in every case of the division of a quarter-section the line for the division thereof shall run north and south," and fractional sections containing one hundred and sixty acres or more are divided in like manner into half-quarter sections, but fractional sections containing less than one hundred and sixty acres are not divided.[20] The act of 1824 provided that the President might at his discretion to promote the public interest, "cause the lands situated on any river, lake, bayou, or water course" to be "surveyed in tracts of two acres in width, fronting on any river, bayou, lake, or water course, and running back to the depth of forty acres."[21] In an early day lands fronting on waters were frequently surveyed under these and other special instructions. The local surveyor should have these special instructions.

The act of 1832, directed the subdivision of public lands into quarter-quarter sections; that in subdividing a half-quarter section, the dividing line should run east and west, and that fractional sections should be subdivided under regulations prescribed by the secretary of the treasury. Under such instructions, fractional sections containing less than one hundred and sixty acres, or the residuary portion of any fractional section, after the subdivision into as many quarter-quarter sections as it is susceptible of should be subdivided into lots, "each containing the quantity of a quarter-quarter section as nearly as practicable" by running such lot lines forming tracts 20 chains wide. The lengths of the lines, and the areas of the lots were required to be entered on the plat.[22]

§ 341. **General rules and deductions.**—The professions will readily deduce from the foregoing synopsis of the several acts the following:

[18]R. L. C. 19.
[19]R. L. C. 20.
[20]R. L. C. 22.
[21]R. L. C. 23.
[22]R. L. C. 24.

First. That the lines, corners and boundaries of the survey of the public lands as returned by the surveyor-general and approved by the government are unchangeable.

Second. That all original township, section, and quarter-section corners so established are conclusive, "whether the corner be in the place shown by the field-notes or not."

Third. All quarter-quarter corners not established by the government surveyors should be placed on a straight line run between the section and quarter-section corners and midway between them, "except on the last half mile of section lines closing on the north and west boundaries of the township, or on other lines between fractional sections."

Fourth. All subdivision lines of sections, running between government corners must be straight lines, running from the proper corner, in one section line, to its opposite corresponding corner.

Fifth. In fractional sections, where no opposite corresponding corner has been established, such lines must be run due north or south or east or west, as near as may be, from the proper corner to the boundary of the fractional section.[23] In order to run such lines properly, mean courses should be adopted.[24]

§ 342. **Extinct corners and identification of memorials.**— In making resurveys, therefore, all extinct corners must be "restored to their original location," Resort should always be had to the marks in the field. The missing corner should be identified by mounds, pits, line-trees, bearing trees, hedges, streams, etc., recorded in the original survey if possible.[25] These afford the best means of relocating the original corner. Should the surveyor be unable to find any of these memorials on the ground, after a careful search, he may receive "clear and convincing testimony" of old residents as to the place

[23]R. L. C. 25-79.

[24]R. L. C. 79: ante § 134.

[25]R. L. C. 26.

where the original corner stood.[26] Of course, all changes of local corners by the surveyor will be subject to review by the courts.[27]

§ 343. **Exceptional cases.**—When new measurements are made on a single line to determine the position of lost corner, it will almost invariably happen that such line over-runs or falls short of the distance given in the notes. When this is the case, the surveyor should always fix the point by proportional measurement on lines conforming to the original field-notes. There can be no departure from this rule.[28] It frequently happens that the relocated corner does not harmonize with the notes in all directions. In that event, the surveyor may be compelled to fix the point with reference to the calls of one line and against the calls of another line. The surveyor should consider all of the surrounding circumstances and then fix the point by rejecting the calls most liable to be erroneous. "For instance," say the instructions, "if the line between sections 30 and 31, reported 78 chains long, would draw the missing corner on range line, 1 chain eastward out of range with the other corners, the presumption would be strong, that the range line had been run straight and the length of the section line wrongly reported, because experience shows that west random lines are regarded as less important than range lines and more liable to error."[29] So, too, where a corner on a standard parallel has been obliterated, it is entirely proper to assume it was placed in line with the other corners, and if the length of line between, say sections 3 and 4, would throw the closing corner into the township lying north, a surveyor would properly assume that the older survey of the standard line is to control the length of the latter and minor line. The marks or corners found on such a line closing to a standard parallel fix its location, but its length should be

[26]R. L. C. 27.
[27]R. L. C. 28.
[28]R. L. C. 29.
[29]R. L. C. 30.

limited by its actual intersection, at which point the lost corner may be placed.[30] As we have seen "all corners marked in the field shall be established as the corners which they were intended to designate" and "the length of lines returned by the surveyors shall be held and considered as the true length thereof," still it is found impossible in some instances to fulfill all of these conditions. In such cases, the surveyor is obliged to choose, by the exercise of a wise discretion, which of two or more lines must yield.[31]

The commissioner of the general land office had such a question up for consideration which involved the boundary between the states of Missouri and Kansas. There the existing but erroneous closing corner was some distance out of the true boundary. That officer held that in subdividing the fractional section the surveyor should hold to the boundary as a straight line and should not take such existing corner as the proper corner of the fractional lots. The corner was taken as fixing the boundary between the two lots but the length of that line extended to a new corner placed on the true boundary. The existing original corner should be preserved, but it should not be allowed to make a crook between section corners on the state boundary.[32] But we are told: "It is only in cases where it is manifestly impossible to carry out the literal terms of the law that a surveyor can be justified in making such a decision."[33] This principle has been recognized in restoring section corners common to two townships. In such cases, the new corner should be placed on the township line. Measurements may be made to corners within the townships in order to check up its position if found to agree, but if the measurements place the corner at some point off of the township line, they should be disregarded.[34]

[30]R. L. C. 31.
[31]R. L. C. 32.
[32]R. L. C. 33.
[33]R. L. C. 33.
[34]R. L. C. 34.

§ 344. **Magnetic declination.**—The commissioner of the land office advises against the use of the magnetic variation as a basis for locating any lost line. As is well known, it can only be used in a preliminary search for evidence of the location of the line.[35] The employees of the government are forbidden to use the needle in determining the course of a line. Government officials decline to advise local surveyors as to what variation to use. Local magnetism affects the needle more or less. The secular change of declination as reported in years gone by can not be relied on. The variation recorded in the notes may have been quite incorrect. The daily and annual variation and defects in old compasses make uncertain the work of the needle.[36] Then too, a large amount of work was done prior to the year 1864, showing variations evidently inconsistent. Prior to that year in running random and true lines the variation was given for each line, but surveys made thereafter gave the true course of the true line thus, "N. 89° 45′ W. on a true line." Hence, the words east and west as found in old records were only approximately correct.[37] The surveyor should make the astronomical calculation and thus determine the true line.

§ 345. **Marks on monuments of survey.**—It it important that the surveyor have a knowledge of the more important marks on monuments or cornerstones or posts. Notches made on the east and south angles of an interior section corner indicate how far that corner is from the east and south lines of the township. In fractional townships the markings are the same as though township was complete.[38] There are cases where the cornerpost is a corner of two townships or two sections only: so too, it is not uncommon to find the corner-stone to have been turned around or disturbed. The surveyor should bear this in mind.[39] Grooves cut in the stone or post

[35]R. L. C. 35.
[36]R. L. C. 36.
[37]R. L. C. 37.
[38]R. L. C. 39.
[39]R. L. C. 40.

on township or range lines indicate the distances to the corners of the township. Thus, two grooves on the north and four on the south indicate the corner to sections 12, 13, 7, and 18.[40] The letters "W. C." upon a monument mean witness corner—not at the true corner, but placed on safe ground at a course and distance given in the notes. "M. C." indicates a meander corner, placed on an exterior line at a given distance from a section corner.[41] "S. C." means a standard corner on a standard parallel, belonging to two sections to the north thereof. "C. C." indicates a closing corner on the same line, either east or west of the standard corner, and belonging to the sections south of such line. The letters "C. C." are also used where regular lines close upon a boundary of a state, park, reservation, or private land claim.[42] Bearing trees are marked "B. T." Two chops or notches on the opposite sides of a tree show that it is a "line tree."[43]

§ 346. **Restoration of corners on base lines and standard parallels.**—All lost corners on base lines, standard parallels or correction lines, should be restored by proportionate measurements on such line. The surveyor should conform "as nearly as practicable to the original notes." He will join the nearest identified original standard corners on opposite sides of the missing corner and by proportionate measure fix the location of such lost corner.[44]

§ 347. **What are standard corners?**—All standard township, section, quarter-section, and meander corners are standard corners. Also closing corners used to determine the location of a standard parallel, or one established during the survey thereof, will, with the standard corners, "govern the alinement and measurements made to restore lost or obliterated standard corners," but the surveyor should not allow any

[40]R. L. C. 41.
[41]R. L. C. 42.
[42]R. L. C. 43.
[43]R. L. C. 44.
[44]R. L. C. 45.

other closing corners to control the restoration of standard corners on base lines or standard parallels.[45]

§ 348. **Restoration of lost closing corners in certain cases.**—What the original surveyor did to establish a designated corner, the local surveyor should do in re-establishing such corner. That is, if a standard parallel had been initiated from a closing corner or had been directed toward such closing corner, such closing corner will be restored to its original position by proportionate measurements from the "corners used in the original survey" to fix its position. That is, measurements from corners on the opposite side of the parallel will not in any manner control the relocation.[46] And a missing closing corner established during the location of a standard parallel as a corner from which to project surveys south, will be re-established by considering it a standard corner.[47]

§ 349. **The proportions to be used.**—If the surveyor will keep in mind the preceding discussion, he will have no trouble in fixing the proper proportion for a determination of the location of the original positions of the lost corner. Generally, it may be said, "as the original field-note distance between the selected known corners is to the new measure of said distance, so is the original field-note length of any part of the line to the required new measure thereof." So, too, the work may be verified by taking the sum of the computed lengths of the several parts of the line. That sum should make the new measure of the whole distance.[48] It must be remembered that existing original corners can not be disturbed. Hence, discrepancies between the old and new measurements of a line adjoining the selected original corners will not affect measurements beyond such corners. The difference will be distributed proportionately to the several parts of the line in question. After checking over the work by a measurement to the nearest

[45]R. L. C. 46.
[46]R. L. C. 47.
[47]R. L. C. 48.
[48]R. L. C. 49.

known corners, new corners should be permanently established. New bearings and new measurements should be taken to permanent objects and a record thereof made for future use.[49]

§ 350. **Restoration of township corners common to four townships.**—There are two cases of such corners. First, where the original corner was established with reference to two lines at right angles to each other. Second, where the original corner was located with reference to measurements on one line only. An example of the latter would be a corner on a guide meridian.[50] A corner subject to first conditions will be established by running a line connecting the nearest known corners on the meridional township lines, north and south of the lost corner. Measurements will be taken and a temporary corner will be established at the proper proportionate distance. This, of course, will fix the corner in a north and south direction only. The nearest known corners on the latitudinal township lines on either side of the lost corner will then be run and measured, and a temporary corner planted on such line at the proper proportionate distance. This will fix the point in an east and west direction only. Through the first temporary corner run a line east or west, as the case may require, and through the second temporary corner run a line north or south, as the case may require. The point of intersection of the two lines so run will mark the position of the restored township corner.[51] See Fig. 87. The restoration of a lost corner on a township line under the second condition referred to above, will be accomplished by a measurement between the nearest known corners on opposite sides of such lost corner and proportioning the distances according to government survey. The corner will be placed on a direct line between such known corners.[52]

[49]R. L. C. 50.
[50]R. L. C. 51.
[51]R. L. C. 52.
[52]R. L. C. 53.

§ 351. **Restoration of corners common to two townships.**—Connect the two nearest known corners on the township line by a right line. Establish the lost corner thereon, by proportionate measurement. This should be verified approximately,

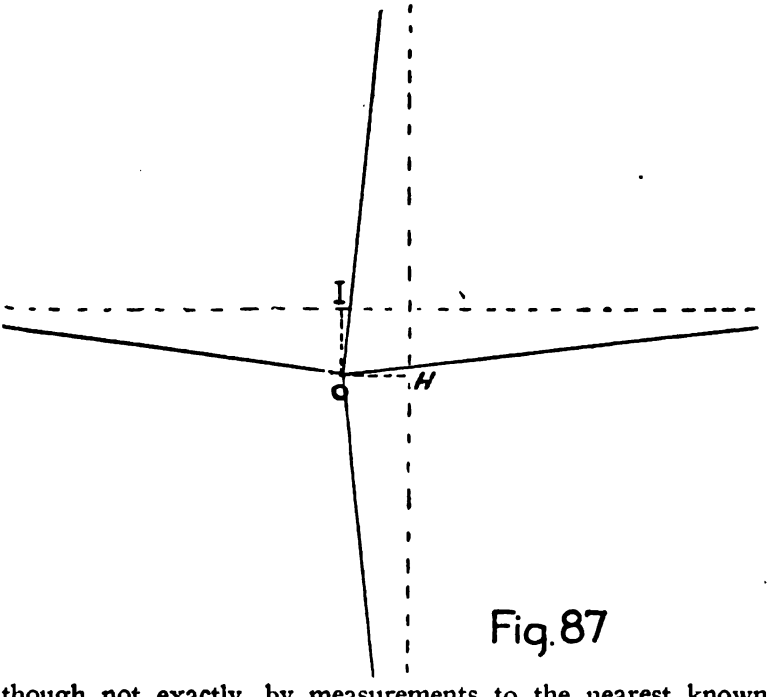


Fig. 87

though not exactly, by measurements to the nearest known corners north and south, or east and west, as the case may require, by a proportionate measurement.[53]

§ 352. **Restoration of closing corners.**—Great care should be exercised in identifying the known corners. This corner should be restored by measuring from the nearest quarter-section, section, or township corner east or west, as the case may be, to the "next preceding or succeeding corner in the order of original establishment, and re-establish the missing closing corner by proportionate measurement." The surveyor should

[53]R. L. C. 54.

remeasure the line upon which the closing corner was originally planted in order to check up the new location.[54]

§ 353. **Restoration of interior section corners.**—It will be readily seen that this class of corners should be restored in the same manner as corners common to four townships. In the event that a number of corners on all sides of the one sought to be restored are lost, the whole distance must be remeasured between the nearest known corners, both north and south, and east and west, and the new corner established by proportionate measurement. A measurement in one direction will not suffice but the surveyor must measure in both directions, and on both sides of the missing corner. Figs. 87-110. Surveyors of much experience know that there were many errors in original surveys and that the line connecting two section corners, which should be straight, is sometimes broken or curved. Line-trees will aid the surveyor in such cases, and, in fact, should always be regarded as the highest kind of evidence of where the original line was run. The surveyor should be certain of the identification of the line-trees or other natural features. In places when the original natural features have been destroyed or never did exist, the "line connecting the known corners should be run straight from corner to corner."[55]

§ 354. **Restoration of quarter-section corners on township boundaries.**—It will be noted that only one set of quarter-section corners were established on township lines. In the event double section corners are found, it will be considered generally that the quarter-section corner stands midway between the two section corners of the intended section and should be so placed. The surveyor will, however, exercise great caution and not mistake the section corners belonging to one township for another township. After the proper corners have

[54]R. L. C. 55; ante §§ 341-3.
[55]R. L. C. 56.

been determined and the line connecting them run and measured, the surveyor will determine the location of the lost corner, in accordance with the field-notes by proportionate measurement between the proper section corners.[56] In those cases where there are double sets of section corners on township and range lines and it is desired to establish quarter-section corners south of the township or east of the range line, such quarter corner should be so placed as "to suit the calculations of areas of the quarter-sections adjoining the township boundaries" as found in the official plat. Proportionate measurements will be used where the new measurements differ from the original.[57]

§ 355. **Restoration of quarter-section corners on closing section lines between fractional sections.**—These corners form a distinct class by themselves and the surveyor should not confuse them with other quarter-section corners. Such corners must be restored by proportional measurement of the entire fractional section line. The corner will be established 40 chains government measure from the section corner and not 40 chains present or new measure. The excess or deficiency must be divided between the different parts of the whole line so as to give each part its due portion. The section corner from which the start was made should be connected by a straight line with the corner closed upon, unless it should develop that the section line is either a broken or curved line. In that event, the work should be checked up, and, if the original line can be found at the place where the lost corner should be located, the corner must be restored on such line at a proportional distance.[58]

§ 356. **Restoration of interior quarter-section corners.**—It will be found that in some of the older surveys these corners were placed at different distances. In all such cases, the field

[56]R. L. C. 57.
[57]R. L. C. 58.
[58]R. L. C. 59.

notes must be the surveyor's guide and the quarter-section corner should be restored at a proportionate distance from the two section corners. In the later surveys those corners are placed equidistant between the two section corners, and should be restored by placing the missing corner on a direct line between the section corners and equidistant therefrom. The remarks heretofore made relative to the true location of such lines and to give heed to line-trees and other natural objects noted in the record of the original survey are applicable here.[59] It will be noted that in some of the southern states it was the custom in early days to establish "half-mile" posts at a distance of 40 chains from the point from which the section line was initiated and at the same time inserting in the notes at the midway point "1/4 sec. cor.," and without indication in such notes that any other corner than the "half-mile" corner was set. In such cases it will be presumed that the 1/4 sec. cor. was "called for" at that point. Owing to confusion, this practice has been discontinued.[60] It should be remembered that these "half-mile" posts are not to be regarded in the subdivision of a section except where they happen to occupy a midway point on the true line. In such case, the last quarter-section corner will be restored on the true line, midway between the section corners.[61]

§ 357. **Where double corners were originally established, one of which is known to restore the other.**—It will be noted that the corners established when the township lines were run, belong to the sections lying north and west thereof. The surveyor should first determine to which sections the known corner belongs. He will readily devise means for determining that fact from data in the notes. After such determination, the lost corner may be restored in line from the known corner, at the distance given in the notes, by proportionate measure-

[59]R. L. C. 60.
[60]R. L. C. 61.
[61]R. L. C. 61.

ment. It should be tested by a retracement to the opposite corresponding corner of the section to which the lost corner belongs. It will be remembered that ordinarily double corners are but a few chains apart, and the distance between them can be readily laid off. This is considered the better way of restoring the lost corner. The line measured would be from one corner of the section to the known double corner and the lost corner fixed by a proportionate measurement on the township line.[62]

§ 358. **Where double corners were originally established and both are missing—To restore the one established when the township line was run.**—In such cases the surveyor should connect the nearest known corners by a right line. He should be careful and make certain that he has the section and not the closing corner to which measurements are made. The lost corner should be restored on the line at a proportionate distance from the known corners. Of course, the corner thus restored will be common to two sections either north or west of the township line. The surveyor should test the accuracy of his work by retracing the section north or west, as the case may be, and thus check up the restored corner. Measurements to objects on the line, mentioned in the notes, will be of great importance in checking up restoration work.[63]

§ 359. **Where double corners were originally established, and both are lost—To restore the one established when the township was subdivided.**—The surveyor will first carefully retrace and mark the township line. He will then retrace the line between the two sections south or east of the township line until it intersects the township line, setting a temporary post at the point of intersection. Verify the correctness of the location of the temporary corner by a measurement to known objects on the township line. Make the necessary corrections.

[62]R. L. C. 62.
[63]R. L. C. 63.

If unusual error be found in one of the tested lines, the surveyor should follow the advices laid down in "Exceptional Cases," in this chapter.[64]

§ 360. **Where triple corners were originally established on range lines, one or two of which have become obliterated—To restore either of them.**—In many respects this is difficult and unsatisfactory. In the older surveys much of the work was carelessly done and erroneous. Meager notes only were frequently made and the surveyor will often find himself with little data to work from. Here he should press into service all of his originality. In the problem under consideration, it will be noted that only two corners were originally established as corners of sections, "those established on the range line not corresponding with the subdivisional survey east or west of said range line." The surveyor will first identify the known corner or corners. He will then restore the lost corner or corners in line north or south, according to the field-note distances in the manner indicated for restoring double corners. He will test his work as directed in this chapter. But should the distances between the triple corners be not given in the notes, as is frequently the case, the surveyor should carefully retrace and mark the range line. Then the section lines closing upon the corners should be carefully retraced according to the notes. The corners should be restored in the same way as is provided for restoring double corners. All data must be examined and all natural features regarded in retracing these lines. The work can only be checked by a recalculation based on the areas noted on the plat. As these were frequently inaccurate in old surveys, the work at best is not very satisfactory.[65]

§ 361. **Where triple corners were originally established on range lines, all of which are missing—To restore same.**—First,

[64]R. L. C. 64; ante § 343.
[65]R. L. C. 65.

restore the corner originally established when the range line was run in the manner heretofore directed, for restoring section and quarter-section corners on township lines. As will be recalled, this is done by remeasuring between nearest known corners on township line and fixing the point on said line by proportionate measurement. The other two corners will be restored in the manner heretofore laid down for re-establishing double corners.[66]

§ 362. **Re-establishing meander corners.**—These corners are in a class practically by themselves. In preparation for this work, the surveyor should carefully rechain three or four of the section lines between known corners of the township within which the lost corner is to be relocated. By this means he will be able to establish the proportionate measurement to be used. He can thus test the original work and by striking a mean in the matter, can determine the length of the section line to the lost meander corner. At the same time, he should take the bearings of the same known lines and by taking a mean between all of them, can arrive at the course of the required line approximately correct. If the original surveyor reported meridional lines as running due north and he finds them to run N. 1° 20′ E. this course should be considered in restoring extinct north line to meander corner.[67] These preliminaries should in no case be omitted. They give the only data by which the section line can be run and proportionate measurements made. The lost meander corner will be planted on the restored line at a point determined by a proportionate measurement, as theretofore found, from the nearest known corner on such line. The retracing of the three or four lines furnishes a "measure stick," as may be said, to fix the length of the restored line to the meander corner. It will frequently be found that the original meander corner has been

[66]R. L. C. 66.
[67]R. L. C. 67.

washed away and its present location would be covered with water. This, however, is unimportant, as the riparian owner usually takes to either high or low-water mark. In those states which hold that dried up beds of lakes belong to the state, the meander corner would mark the boundary.[68] Where the United States has disposed of its lands bordering on lakes and streams, it does not claim any interest therein or between the meander line and such waters unless there be an explicit reservation or unless there be some fraud or mistake. The meander lines are not regarded as boundary lines. However, the preservation of the meander corner is important as marking the position of the section line. The matter of the division of accretion between adjoining owners is a subject of state regulation, as we have seen.[69]

§ 363. **Restoration of fractional section lines.**—Where local surveyors are required to restore fractional section lines closing on national parks, reservations, military reserves, or private grants, they will proceed in the manner indicated in the preceding section. The corners on these lines will, however, mark the boundary line, and are not meander corners. It will be found in some cases that corners have been moved from their original location, either by accident or design. All such corners should be restored to their original locations. In the absence of all means of identification of the position of the original corner, the work would not be very acceptable to land owners whose boundaries are affected by such corners. As the United States has no further authority in such matters, the location of such lines should be made under the order of a court of competent jurisdiction of the state where situated.[70]

§ 364. **Records.**—The commissioner of the general land office has transferred the original field-notes and records of public surveys under authority of Congress to the following

[68]R. L. C. 68-9.
[69]R. L. C. 70; ante ch. XIV.
[70]R. L. C. 71.

named states. Rev. St. 2218, 2219, 2220. Application may be made to the officials therein named for copies.[71] In other public-land states the records are retained in the office of the surveyor-general of the United States.

Alabama: Secretary of State, Montgomery.
Arkansas: Commissioner of State Lands, Little Rock.
Florida: Commissioner of Agriculture, Tallahassee.
Illinois: Auditor of State, Springfield.
Indiana: Auditor of State, Indianapolis.
Iowa: Secretary of State, Des Moines.
Kansas: Auditor of State and Register of State Lands, Topeka.
Louisiana: (after June 30, 1909) State Officers.
Michigan: Public Domain Commissioner, Lansing.
Minnesota: Secretary of State, St. Paul.
Mississippi: Commissioner of State Lands, Jackson.
Missouri: Secretary of State, Jefferson City.
Nebraska: Commissioner of Public Lands and Buildings, Lincoln.
North Dakota: State Engineer, Bismark.
Ohio: Auditor of State, Columbus.
Wisconsin: Commissioners of Public Lands, Madison.

§ 365. **Subdivision of sections.**—It must be remembered that the rules for the subdivision of sections are based upon the laws and regulations governing the survey of the public lands. A state statute which controverts those statutes and rules would be void and should not be followed. If questions arise which do not appear to be covered by these rules and can not be solved by a reference to the instructions found in this book, the surveyor should write the commissioner of the land office. Such inquiry should contain a particular description of the land, giving section, town and range; also a dia-

[71] R. L. C. 72.

gram showing conditions existing. The distances should be given in chains and links and not in feet.[72] Before attempting the subdivision of a section, the surveyor should determine the actual boundaries thereof. All of the section and quarter-section corners must be determined. If lost or obliterated, they should be restored as heretofore directed. The surveyor should never allow himself to be coaxed into making a survey by a reference to one or two corners only, as it is wholly unwarranted. The surveyor should first reestablish the obliterated corners; secondly, he will run the quarter lines; thirdly, he will run smaller tracts according to the rules promulgated for making an equitable division as found herein.[73]

§ 366. **Subdivision of sections into quarters.**—The surveyor should run straight lines from the established quarter-section corners, to the opposite corresponding corners. The point of intersection of such lines will be the center of the section—the legal center.[74] Upon the lines closing upon the north or west sides of a township, it must be remembered the quarter corners are set at exactly 40 chains, original measure, to the north or west of the last interior section corner. The excess or deficiency thereby being thrown into the half mile bordering on the township or range line, as the case may be.[75]

Where there are double section corners on township or range lines, the quarter-section corner south of the town line and east of the range line were not originally established. In subdividing such sections, the quarter corners should be placed at a point "to suit the calculations of the areas of the quarter-sections adjoining the township boundaries," as shown on the official plat. Proportionate measurements should be adopted "where the new measurements of the north or west boundaries of the section differ from the original measurements."[76]

[72]R. L. C. 73.
[73]R. L. C. 74.
[74]R. L. C. 75.
[75]R. L. C. 76.
[76]R. L. C. 77.

§ 367. **Subdivision of fractional sections.**—It will be noted that in many fractional sections opposite corresponding corners were not or could not be established. The subdivision lines should be determined by "running from the established corners due north, south, east, or west, lines, as the case may be, to the water course, Indian boundary line, or other boundary of such fractional section."[77] This is accomplished by running a mean between the north and south boundary, or east and west boundary of the section, as the case may be.[78] If there be no opposite section line, the subdivision line should be run parallel to the east, south, west, or north boundary of the section, as "conditions may require."[79]

§ 368. **Subdivision of quarter-sections into quarter-quarters.**—The surveyor will first establish all of the quarter-quarter corners at points midway between the section and quarter-section corners, and between quarter corners, and the center of the section, "except on the last half-mile of the lines closing on the north or west boundaries of a township where they should be placed at 20 chains, proportionate measurement, to the north or west of the quarter-section corner."[80] Having established the quarter-quarter section corner as directed herein, the surveyor should run the subdivision lines straight between the opposite corresponding quarter-quarter section corners. The intersection of such lines will be the center of the quarter-quarter section and the corner common to the four quarter-quarter sections.[81]

§ 369. **Subdivision of fractional quarter-sections.**—From what has already been said, it will be seen that subdivision lines of fractional quarter-sections will be run from the properly established quarter-quarter section corners with courses to be determined by conditions. This course should be run

[77]R. L. C. 78; ante § 131.
[78]R. L. C. 79; ante § 134.
[79]R. L. C. 79; ante § 31-4.
[80]R. L. C. 80; ante §§ 135-7.
[81]R. L. C. 81; ante § 135.

due north or south, or east or west, as the case may be, to the lake, reservation, or water course, or, in some cases, as we have seen, parallel to the east, south, west, or north boundary of the quarter-section according to conditions.[82]

§ 370. **Proportionate measurement.**—"By proportionate measurement," the instructions continue, "of a part of a line is meant a measurement having the same ratio to that recorded in the original field-notes for that portion as the length of the whole line by actual measurement bears to its length as given in the record." It is seldom that the old and new measures agree. The error may be caused by a chain used, of erroneous length, by neglecting to set the pin perpendicular; by failure to level the chain, by erroneous entry or transcribing of notes. The surveyor should avoid all of these in retracement of the original survey. It was the practice in former days to "adjust the chain" to suit the original measure, but in recent times the method of proportionate measurement is used for computing the surplus or shortage. This method gives more reliable results.[83]

For Example: The field-notes of the original survey of the line from the quarter-section corner on the west side of Sec. 2, T. 24 N., R. 14 E., Wisconsin, to the north line of the township show the distance to be 45.40 chains. The county surveyor's measure gives the distance 42.90 chains. It is required to find the distance the quarter-quarter section corner should be located north of the quarter-section corner. The correct proportion would be as follows: As 45.40 chains is to 42.90 chains, so is 20 chains to X. By computation X is found to be 18.90 chains. That would be the distance recent measure of the quarter-quarter corner north of the quarter corner. This, it will be noted, is the equivalent of 20 chains government measure. Thus the discrepancies between original

[82]R. L. C. 82; ante § 137.
[83]R. L. C. 83.

and new measurements are distributed to every part of the line.[84]

§ 371. **Equitable part of surplus apportioned to entire line.**—It must not be forgotten that a survey must be initiated at some well defined and unquestioned starting point on the original survey. So, too, it must terminate at some identified point in that survey. Intermediate corners will be placed along the line to be retraced by proportionate measure. For instance, should the east side of a section be originally reported to be 80 chains, and the late measurement be found to be 82 chains, then the quarter corner planted at 40 chains by the government survey would be placed at 41 chains, recent survey. The proper proportion would be as follows: 80 : 82 :: 40 : x[85] Thus every part of the line is given its equitable part of any surplusage and must bear its part of any deficiency.

The reader will find it advantageous to peruse other chapters in this work while studying this one. Also to make a study of the diagrams used as illustrations.[86]

§ 372. **Distinction between corner and monument.**—While the terms corner and monument are generally used interchangeably, though, in considering the restoration of lost corners, there is clearly a distinction which should be noted. Strictly speaking, the term "corner" is used to denote a point determined by surveying or other operation. The term "monument" should be used in speaking of the evidence of the location of that point—the corner. A monument may be entirely obliterated, and yet the location of the corner may be known. Still the monument and its accessories are the very highest evidence of the correct location of the corner. The surveyor can not place too much importance on a search for the original monument and accessories and he should find them if to be found before deciding the corner to be a lost one.

[84]R. L. C. 84-5.
[85]R. L. C. 86.
[86]Ante ch. VII.

§ 373. **Monuments and accessories.**—Strictly speaking, the accessories are a part of the monument. Where a monument is obliterated, the accessories furnish the highest evidence of the location of the original monument, and, therefore, such accessories are of prime importance in relocating such obliterated monument. The term, "accessories," includes all witness-trees, line-trees, mounds, pits, streams, bodies of water, ledges, rocks, or other natural features to which the distance from the corner or monument are known. These natural features furnish unmistakable evidence of the location of the monument, the nearer to the required point, the stronger the evidence.

§ 374. **An existent or known corner.**—"An existent or known corner" is one which can be identified, either by the known monument of that corner, or by establishing that monument from the accessories by a reference to the notes of the original survey. In fact, the accessories and notes furnish corroborating evidence of the location of the monument of the highest degree. Hence, in all original surveys and in resurveys, full notes should be taken of all accessories established, of the bearings of lines and randoms, and of the methods used in establishing corners, running or retracing lines.

No corner should be regarded as lost until every means has been exhausted in an attempt to locate it, either from the original monument or from the accessories. Accessories may appear, on casual examination, to be destroyed, but on a careful, systematic search, evidence of their location will be found. Where search for monuments or accessories can be made from a single known point, the problem is materially simplified, and directly other points may become known and together furnish unmistakable evidence of the location of the corner.

§ 375. **Character of original monuments and accessories.**—In his effort to identify the original monument, the surveyor will give intelligent investigation to the character of that monument and the accessories. It is assumed that the field-notes

give a detailed description of such monument and accessories and that the surveyor has a copy of such notes. He should regard the size, the material, local conditions, deteriorations, the lapse of time, the soil and any other features or conditions which may have a bearing on the subject. If there were witness trees, which were blazed and marked, these will be identified by carefully cutting down to the original blaze and comparing the markings with the notes, being observant of the years of growth of the tree since the original markings. The size of the tree and the kind of timber should not widely vary from the notes. So, also, of the monument and its accessories generally.

It may happen that there are material disagreements between some of the accessories. There may have been an error of reading or entering in the notes, the bearing, the distance or the kind of accessory. In that event, the surveyor should eliminate some of the calls in order to harmonize the greater number and thus establish the monument as originally located. In this process, the surveyor will be required to use his best judgment, and corroborate the evidence which seems the most likely.

The 1919 Manual, Sec. 354, recommends the following points for consideration of the surveyor in such elimination:

(a) "The character and dimensions of the monument in evidence should not be widely different from the record;

(b) "The markings in evidence should not be inconsistent with the record; and,

(c) "The nature of the accessories in evidence, including size, positions, and markings, should not be greatly at variance with the record."

§ 376. **What is a lost corner?**—A corner should not be regarded as lost until all means of fixing its original location have been exhausted. It is so much more satisfactory to so

locate the corner than regard it as "lost" and locate by "proportionate" measurement.

If the original corner has at some time been relocated by a surveyor, who made a record of such location, and his notes and the accessories established by him are to be found and they are unimpeached, it will be regarded as the very highest degree of evidence in the absence of finding the original monument or the accessories thereof.

Another high degree of evidence of the location of the original corner or monument thereto is the evidence of old residents in the immediate vicinity of the corner who have personal recollections of the location of the original monument and who are able to give positive evidence of the exact location of such monument.

The declarations of surveyors and others, since deceased, are exceedingly valuable where clearly proven and are unimpeached.[87] The surveyor should use great care to establish the good faith of both the record testimony and the evidence of old residents. He should not too hastily accept or reject such evidence, but should carefully consider it in all its bearings.

Boundary disputes and the claims of the disputants as to location of the original corner should be carefully considered. The surveyor will follow up all such claims and determine what, if any, merit there be in the claim. What we have said with reference to the testimony of old residents and surveyors as applied to the original monument will apply to accessories. All such testimony should be severely tested. It should be compared with known objects or corners and with natural features, such as line-trees, streams, ledges, rocks, etc.

The commissioner of the land office has recently defined a "lost corner" as follows: "A lost corner is a point of a survey whose position can not be determined, beyond reasonable doubt,

[87]Post ch. 16.

either from original traces or from other reliable evidence relating to the position of the original monument, and whose restoration on the earth's surface can be accomplished only by means of a suitable surveying process with reference to interdependent existent corners."[88]

§ 377. **Proportional measurement.**—A proportional measurement is defined by the 1919 Manual (364) to be "one resulting in concordant relation between all parts of an original record length of a line and the new distances given to the several parts as determined by the remeasurement, in such manner that the new distance given to any part of a line shall bear the same relation to the original record length of that part of the line as the new measurement of the whole line bears to the original record length of said line." Practically this amounts to a distribution of the excess or deficiency of a given line, as found by recent measurement, over the whole line.

§ 378. **Single proportionate measurement.**—"The term single proportionate measurement," says the 1919 Manual (365), "is applied to a new measurement made on a single line to determine the position thereon for the purpose of restoring a lost corner, for example, a quarter-section corner on line between two original section corners." Thus to restore a lost quarter-section corner between two known section corners, the surveyor is required to run a random line between the two section corners, measuring the distance and, at the distance of 40 chains, set a temporary post on the random. He will then continue toward the other section corner, noting the distance and the falling at that corner. He will then correct back and set on to the true line, establishing the missing quarter-section corner at a proportionate distance on a direct line between the two section corners. All interior quarter-section corners and all section and quarter-section corners on township lines,

[88]Manual 1919, § 360.

and also section and quarter-section corners on standard parallels are generally re-established by the single proportionate measurement. In fact "The method of single proportionate measurement is generally applicable to the restoration of lost corners on standard parallels and other lines established with reference to definite alinement in one direction only. Intermediate corners on township exteriors and other controlling boundary lines are to be included in this class."[89] Hence it will not do to say that all section corners are established by what is termed the "double proportionate measurement." If the lost section corner is on a "controlling line" it must be re-established by the single proportionate measurement, and with good reason, for it was originally so established.

§ 379. **Double proportionate measurement.**—"The term, 'double proportionate measurement' is employed to signify new measurements made between four original corners on intersecting meridional and latitudinal lines for the purpose of fixing by relation to both lines the position of a lost corner for example, a corner common to four sections or four townships."[90] The reason why the double proportionate measurement is made in such cases is because the corner was originally located with reference to distances in both directions. The surveyor will generally use the method of double proportionate measurement in relocating a lost corner common to four townships or a lost interior corner common to four sections. The theory is that monuments north and south should control the latitudinal position of a lost corner, and monuments east and west should control the longitudinal position of such corner. Thus the influence of nearest known corners is exerted on the relocation of a lost corner in its proper place.

§ 380. **To re-establish lost corner common to four townships.**—As we have seen, there are two kinds of such cor-

[89]Manual (1919), 372.
[90]Manual (1919), 365.

ners.[91] The first where the position of the lost corner is made to depend on two lines run at right angles to each other, and the other where such lost corner is on a guide meridian. In the former case, the corner was originally located by measurements in both directions. In the latter, it was located by a measurement in one direction only. To re-establish the former, the surveyor should first run lines connecting the nearest identified corners north and south of such corner, placing a temporary post at the proportional distance between the nearest known corners. This will fix the latitude of the lost corner. The surveyor will next measure between the nearest identified corners east and west of the lost corner, and by a proportionate measurement in a similar manner plant a temporary post at the proper point. This will determine the departure of the lost corner. From the first temporary post the surveyor will run a true east or west line, as the case may be, and from the second temporary post he will run a true north or south line, as the case may be, and, at the point of intersection of the two lines, he will establish the lost corner.

Let it be assumed that the point E in Fig. 88, being a corner common to four townships, is a lost corner; that the nearest identified corners on the township lines are A, B, C and D. It is required to restore such lost corner. The surveyor will commence at D and random toward B, measuring the distance DB. He will plant a temporary post at the correct proportional distance, as at H, Fig. 87. He will then random from A toward C, measuring the distance AC. He will plant a temporary post at the correct proportional distance, as at I, Fig. 87. He will then run a true west line from the point H, and a true north line from the point I, and at the point of intersection of these two lines locate the lost township corner as at O.[92] If the lost corner be on a guide meridian and orig-

[91] Ante § 350.

[92] Manual (1919), 368.

inally established by a measurement in one direction only, the single proportionate measurement will be used.

§ 381. **To restore corner common to four townships where the lines from three directions only have been established.—**

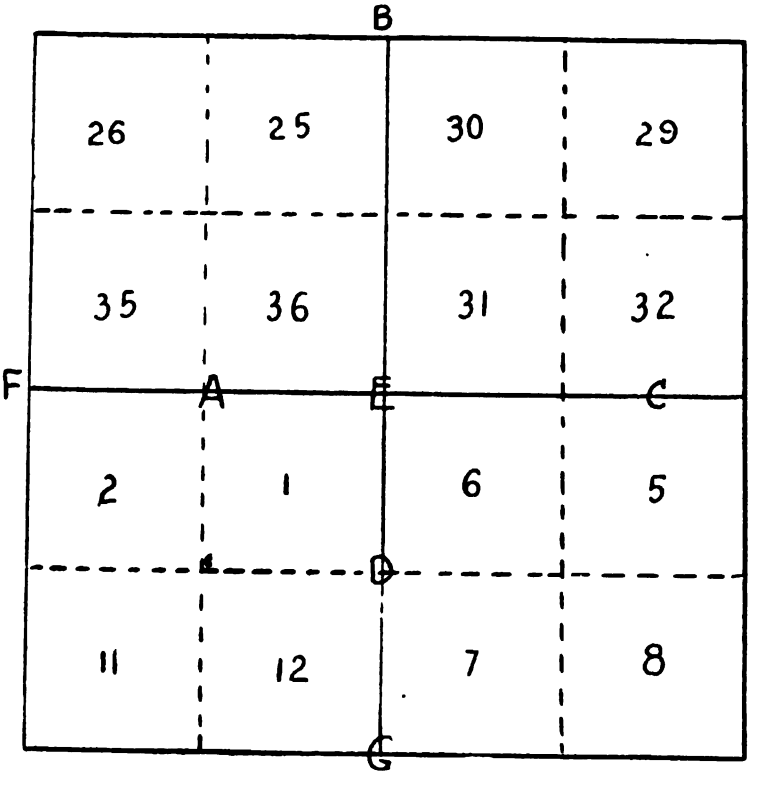


Fig. 88

Referring to Figures 87 and 88, let it be assumed that the latitudinal line EC had not been established in the original survey, how is the lost corner E to be restored? The temporary point H, Fig. 87, will be fixed in the same way set forth in the preceding section. The temporary point I will

be fixed by taking the record distance to the nearest identified corner in the opposite direction, as at A. The point O will be fixed by running the lines IO and HO as in the preceding section.[93] While this is the rule prescribed by the commissioner of the general land office, yet it would seem to the writer that it is subject to criticism, in this, that to take the record distance without any comparison of recent measurements with original measurements that it would be very apt to give an erroneous location. It would seem that a more satisfactory method would be to measure on beyond A to another identified corner to the west and then make AE a distance proportional to such entire distance. This would at least approximate the original measurement and we believe that was the intention of the commissioner. Then, occasionally it will be found that the corner common to four townships was established originally by measurements in two directions only. To restore such a corner, the Manual (371) lays down the rule to fix the point E by measurements in two directions only, that is, take the record distances. It would seem to us that this is subject to the same criticism. A more accurate method would be to take two identified corners in each of the two directions and establish E at a proportional distance as compared with the original measurement. This would be employing the rule of a definite surplus or deficiency.[94] It is quite probable that the commissioner so intended.

There is, however, no doubt about the rule prescribed by the land department in this respect. To make certain of the true construction of the rule so prescribed by the commissioner the author wrote the commissioner, on December 19th last, as follows:

[93]Manual (1919), 371.
[94]Manual (1919), 382.

"Commissioner of the General Land Office,
"Washington, D. C.
"Dear Sir:—

"The annexed diagram represents a part of four townships, showing the corner common to the four. Originally the lines DE, AE, and BE were run, but line EC was not run. That is, the corner E was located with reference to only three directions. Such corner E—the corner common to the four townships is lost. Corners A, B, D and F, all section corners on township lines are identified. Would you let me know how corner E is to be re-established or restored? Assumed notes give distance DE, BE, AE and AF.

"Second Proposition. Assuming the corner E was originally fixed by lines or measurements in two directions only, as lines DE and AE. Section corners A, D and F on township lines are identified. How should corner E, now lost, be restored? It will be assumed that the notes give the distances FA, AE and DE in this second proposition; also the distance DG.

"Thanking you, I am, Yours truly,
F. E. CLARK."

(References herein are to Fig. 88.)

On January 5th, 1920, the commissioner replied as follows:
"Mr. F. E. Clark,
"Minneapolis, Minn.
"My Dear Sir:

"Replying to your letter of December 19th, 1919, relative to the restoration of a lost corner common to four townships under certain hypothetical conditions described in your letter, you are advised that in general such restorations are subject to 4-point control *irrespective of the question whether all of the lines initiated from or terminating upon the said corner were established at or about the same time.*

"However, upon the hypothesis set forth in your letter, it may be stated that in the *first case* cited the latitudinal position of the missing corner should be determined by simple proportion based upon the record of the original survey between the points B and D. The corresponding position in departure should be obtained by projecting the record measurement easterly from the point A. The true position of the missing corner will then be found at the intersection of cardinal offsets from the two temporary points thus established. In this connection it is to be observed that the points F and G will not enter into the problem, as the points A and D, upon the same lines, are nearer to the locus of the missing corner.

"Under the conditions raised in your *second* inquiry, the missing corner E should be established at the intersection of cardinal offsets from two temporary points determined by projecting the record of the original survey northerly from the point D and easterly from the point A in the manner suggested in the preceding paragraph.

"Very respectfully,

C. M. TRUCE,
Assistant Commissioner."

Referring to Figures 87 and 88, to so restore corner E under the first assumption, the surveyor should measure northerly from D to B and set a temporary stake near E, Fig. 88, as at H, Fig. 87, at a proportional distance. Then measure from A toward E, the government distance setting a temporary stake as at I Fig. 87. Then run offsets IO and HO intersecting at O, the corner to be restored. In our opinion the chain or tape should be adjusted to correspond with original measurement by measuring other lines in that immediate vicinity run at the same time.[95]

In the second assumption, measure from D toward E, the government distance and from A toward E, the government

[95]Post § 382.

distance, and at those points set temporary stakes as at I and H, Fig. 87. Run the offsets IO and HO, intersecting at O. Point O will be the position of the restored corner.

§ 382. **To restore lost meander corner.**—Where the meander corner was originally established on a line projected across the body of water, such lost meander corner will be restored by single proportionate measurement. The surveyor must first determine the distance across such body of water and also the distance to the first identified corner beyond, as a basis for computation of the proportional distance required. If the meander corner is not on a line projected across the body of water, then the surveyor will determine the location of such meander corner under the rule laid down in this chapter, as promulgated by the commissioner of the land office. (67) That is, he will measure several known lines in the immediate vicinity of the lost meander corner and also take the bearings of several of such lines. Thus he can determine approximately the proportional distance to lay off from a known corner and also the bearing of such line in restoring such meander corner. To illustrate, assume that the meander corner A, Fig. 89, is lost. Required to restore it. The surveyor will carefully retrace the lines BC, DE and FG, the corners B, C, D, E, F and G being known. He will take the three distances and determine a definite surplus or deficiency—a general average. He will likewise determine the bearings of the three lines—a mean will give the approximate bearing of line AB. Run such line with such bearing and lay off the proportional distance as determined by computation using the general average, surplus or deficiency.

§ 383. **Restoring lost corners on broken boundaries.**—The surveyor will occasionally find it necessary to restore lost corners on broken lines. It may occur on a township line which is not uniform, and what is said here applies to restoring such corners, as well as other corners. Referring to Figure 90, let

it be assumed that the corners A and D in the irregular line ABCD are known; that the corners B and C are lost; that the surveyor has the record of the original bearings and distances of all the lines. He should begin at the point A, lay off the record bearing and measure the record distance toward

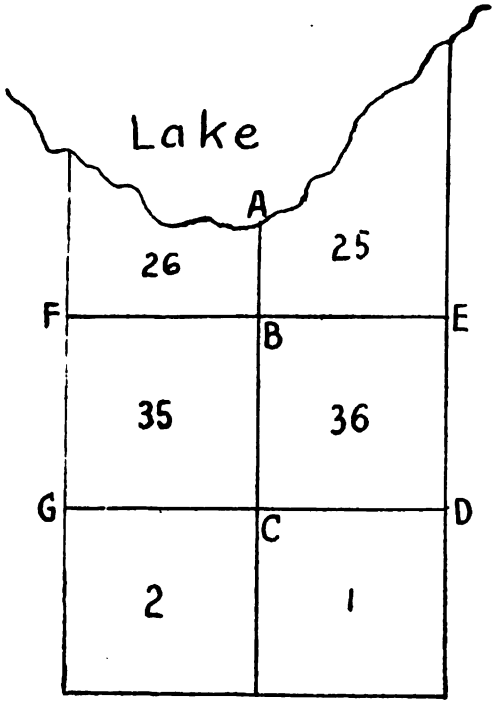


Fig. 89

b, at which point a temporary stake should be planted. From b, he should lay off the record bearing and the distance toward c, at which point a temporary stake should be planted. From c, he should lay off the record bearing and distance and plant a temporary stake at d. He should then determine the error D-d and the bearing thereof, and at each of the corners set

back the proportional number of feet according to the length. The proportion for the first correction should be AB : AD :: Bb : Dd. Substituting the distances given in the diagram we have for Bb 6 2/3. From b set back toward B 6 2/3 feet. The closing of the lengths of the several lines will be ascer-

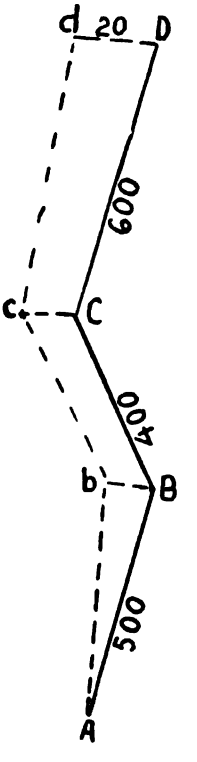


Fig. 90

tained also and the several corners finally established at the proper adjusted distances. Shoud the entire distance over-run or fall short allowance will be made at the several corners and proper corrections made. By adjusting the temporary posts, having regard for errors in both directions, the correct corners

can be restored. The 1919 Manual (380) provides that the bearing of B-b, C-c and D-d should all be the same. That is, B-b and C-c should be made parallel with D-d. It is doubtful whether this would be true.

§ 384. **Restore a lost closing corner on standard parallel.**—A closing on a standard parallel must not go beyond such standard parallel. Hence, in restoring a lost closing corner on such parallel, the surveyor should first run such standard parallel, setting a temporary post at the distance shown in the field-notes, on such parallel. He should then set the permanent corner by single proportionate measurement between the nearest identified corners on such parallel. Should it develop that a post was set or a tree marked on the north and south line either north or south of the standard parallel, it would control the location as to the departure but not as to the latitude. The latter is controlled by the parallel.[96] The surveyor will undoubtedly find unusual instances, as where by reason of manifest distortion in the lengths of lines or in cases where many corners have been lost in the vicinity of the corner sought. In such cases, he must exercise his best judgment in the restoration. If he be very much in doubt after a careful consideration of all the points, as to the method to be pursued, he can get valuable suggestions from the commissioner of the general land office, by writing that officer and clearly setting forth the problem. The methods suggested in this chapter, as well as those suggested in the chapter on "Some Usual and Unusual Questions Answered," are based on the rules laid down by the land department, and also on decisions of the courts of last resort in the several states. There is a principle running through all of the cases which should be followed in the restoration of lost corners. That principle is one of equity.

[96]Manual (1919), 378; R. L. C. (1909), 55.

§ 385. **Government corners conclusive.**—The corners established by the United States surveyors are conclusive as to location of boundary lines of sections and subdivisions thereof.[97] And such corner is where the government surveyors planted it right or wrong.[98] A state statute can not change such corner if it can be found or located according to the rules prescribed by the surveyor-general of the United States.[99] And still lines long established should not be disregarded. They may form the basis for the most accurate and satisfactory way of restoring a lost corner.

§ 386. **Obliterated meander corners.**—Obliterated or lost meander corners are to be restored according to the rules prescribed by the United States land office for the "Restoration of Lost and Obliterated Corners," (1909).[1] Such lost meander corner should be established by proportionate measurement. For instance, if such corner be between the east or west quarter-corner and the north boundary of the section, then the surveyor should find such quarter-corner and also the section corner first to the south. He will then measure from such section corner northerly along the section line on random to such quarter-corner, noting the distance and departure carefully, and continue northerly, planting the lost meander corner in line with the quarter-corner and section corner and at a proportionate distance from section corner.

§ 387. **Irreconcilable and inconsistent calls.**—Irreconcilable and inconsistent calls in a description are to be given effect in the following order: 1. Natural objects; 2. Artificial marks or monuments; 3. Courses and distances.[2] But it has been held by the same court that, "Where government corner

[97]Frederitzie v. Boeker, 193 Mo. 228, 92 S. W. 227; Tolleston Club v. State, 141 Ind. 197, 38 N. E. 214, 40 N. E. 690.

[98]Beltz v. Mathiowitz, 72 Minn. 443, 75 N. W. 699.

[99]Beltz v. Mathiowitz, 72 Minn. 443, 75 N. W. 699.

[1]Kleven v. Gunderson, 95 Minn. 246, 104 N. W. 4.

[2]Kleven v. Gunderson, 95 Minn. 246, 104 N. W. 4; ante § 382.

is lost or obliterated, so that resort must be had to the government notes to determine its location and such notes are inconsistent, there is no universal rule that certain ones shall be preferred over others. Those should be accepted which under all of the circumstances are entitled to the greater credit as evidence and most likely to be according to fact."[3]

§ 388. **Original corners can not be corrected by court.**—In determining the identity of land within a township, where the original survey was concededly erroneous, the question to be decided is the location of the actually established government corners; and it is not the province of the court to rectify errors in such surveys.[4] The corners of government subdivisions in the public land survey are where the government surveyors put them; and the courts can not correct errors in the location.[5]

§ 389. **Survey made under state law.**—A survey made under state law without regard to government corners, and with no thorough attempt to locate obliterated or lost corners is not binding.[6] In determining particular claims as to what is a particular quarter-section, resort must be had, first, to the monuments placed at the various corners, when the original government survey was made, provided they are still in existence, or can be relocated by any attainable data.[7] And it is held that the original survey is not open to collateral attack and is presumed to be correct.[8]

§ 390. **Where government survey is grossly fraudulent.**—While it is generally held that courses and distances are the lowest degree of evidence of the locations of corners yet it is

[3]Stadin v. Helin, 76 Minn. 496, 79 N. W. 537.

[4]Mason v. Braught, 33 S. Dak. 559, 146 N. W. 687.

[5]Goroski v. Tawney, 121 Minn. 189, 141 N. W. 102.

[6]Mason v. Braught, 33 S. Dak. 559, 146 N. W. 687.

[7]Mason v. Braught, 33 S. Dak. 559, 146 N. W. 687.

[8]Russell v. Maxwell Land Grant Co., 158 U. S. 253, 39 L. ed. 971, 15 Sup. Ct. 827.

said that, "Courses and distances set forth in plan of survey govern where survey was grossly fraudulent, and (a certain lake) never existed within half a mile of point indicated on the plat, and to fix the lake as a boundary would give the patentee an area very much in excess of land paid for and necessitate going outside of the section in which the description and plat placed the land.[9] See chapter on "Alluvion, Avulsion and Reliction" for a discussion of the principles of this case. It will be noted it was the fraudulent survey that vitiated itself and for that reason the court, in effect, holds that the lake—the natural monument—never existed and makes the meander line as indicated on the plat, the boundary line. In other words, fraud vitiates everything.[10]

§ 391. **Apportion distance between two known corners to establish lost corner.**—Where the corners of a lot in a recorded plat have been lost, they should be re-established by measuring between two known corners on opposite sides of the lost corner and apportioning the distance according to the original measurements. If there are two such known corners in the same block, they should be used in making such measurements, but if not, the surveyor should go to the nearest known corner or corners in another block.[11] In this case the court says: "The unvarying rule to be followed in such cases is to start at the nearest known point on one side of the lost corner, on the line on which it was originally established; to then measure to the nearest known corner on the other side, on the same line; then if the length of the line is in excess of that called for by the original survey, to divide it between the tracts connecting such two known points, in proportion to the lengths of the boundaries of such tracts on such line as given on such

[9]Security Land & Exploration Co. v. Burns, 193 U. S. 167, 48 L. ed. 662, 24 Sup. Ct. 425.

[10]Ante Ch. XIV; Security Land & Exploration Co. v. Burns, 87 Minn. 97, 91 N. W. 304, 63 L. R. A. 157, 94 Am. St. 684.

[11]Lewis v. Prien, 98 Wis. 87, 73 N. W. 654.

survey." "The method always followed in re-establishing corners, is to measure the line connecting the nearest known corners on the same line, on either side of the lost corner, and then divide the excess, if any be found as before stated."[12]

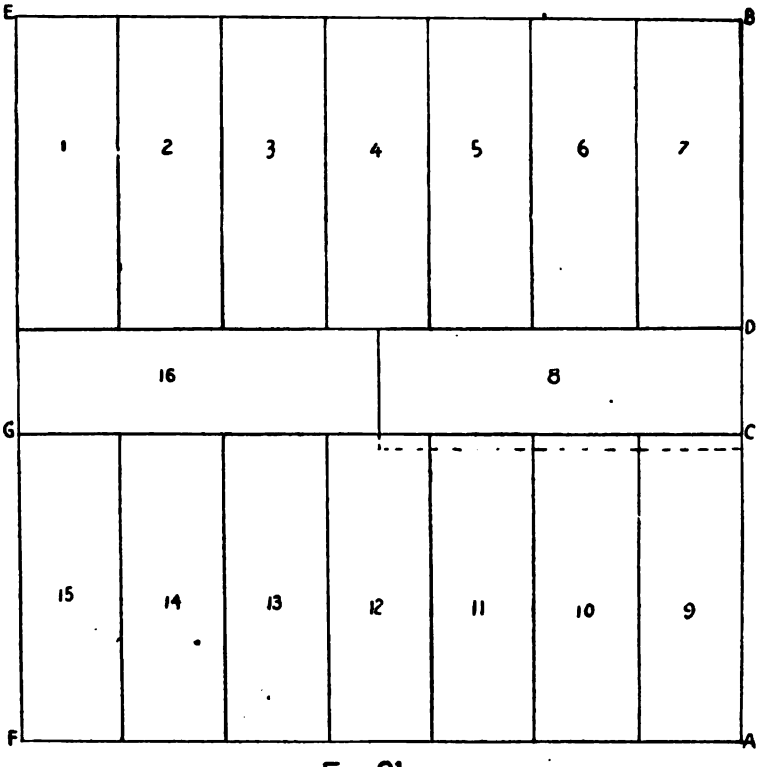


Fig 91

See Fig. 91. Known corners A, B, F, E. Lost corners C, D, G. Disputed line C G. Disputed tract indicated by dotted line south of lot 8. Measure A B and apportion distance according to original measurement at C. This point marks

[12]Lewis v. Prien, 98 Wis. 87, 73 N. W. 654; Pereles v. Magoon, 78 Wis. 27, 46 N. W. 1047, 23 Am. St. 389; Jones v. Kimble, 19 Wis. 429; O'Brien v. McGrane, 27 Wis 446.

the east end of the disputed line. Establish G by measuring E F and apportioning distance according to the original measurement. Connect C G. C G is the true boundary line. If distances should be the same length as original measurements, no apportionment would be necessary.

§ 392. **Witness trees.**—A witness or bearing tree is not an established corner, but merely a designated object from which, in connection with the field-notes, the location of the corner may be ascertained.[13]

§ 393. **Lost corner on standard parallel.**—A survey made for the purpose of establishing lost corners on a standard parallel or correction line may be rejected in part because made under a mistake of fact as to the existence and location of a certain section corner, and yet be adopted by the court insofar as it was not controlled by such mistake.[14]

§ 394. **Variation between meander line and field-notes.**—Where there is a variation between the meander line established by the surveyors as shown by the official plat of the survey and the field-notes, the former controls.[15]

§ 395. **Courses and distances yield to fixed monuments.**—It is the universal rule that courses and distances must yield to fixed monuments. Such courses and distances might place the corner at some point other than the so-called fixed monument, but nevertheless, the latter must control.[16] And it is said, "It is the general rule here, as well as elsewhere, that courses, distances and descriptions must yield to actually existing monuments, or to the site of their former location, if clearly established."[17] And it is the rule that the true corner

[13]Stadin v. Helin, 76 Minn. 497, 79 N. W. 537.

[14]Ferch v. Konne, 78 Minn. 515, 81 N. W. 524.

[15]Hanson v. Rice, 88 Minn. 273, 92 N. W. 982.

[16]Lawler v. Rice County 147 Minn. 234, 178 N. W. 317, 180 N. W. 37.

[17]Beltz v. Mathiowitz, 72 Minn. 443, 75 N. W. 699; Chan v. Brandt, 45 Minn. 93, 47 N. W. 461; Yanish v. Tarbox, 49 Minn. 268, 51 N. W. 1051.

of a government subdivision is where the government surveyors established it, and this whether or not it be right or wrong.[18] And it is said, "In the public-land surveys the corners of government subdivisions are where the government surveyors correctly or mistakenly place them; and errors in their location can not be corrected by the courts."[19] And a lost corner is one whose location can not be found by resorting to evidence at hand and competent. The fact that physical location of corner can not be seen does not necessarily make it a lost corner.[20]

§ 396. **Must regard field-notes and must search for corners.**—A county surveyor employed to restore the lines and corners of adjacent tracts of land according to the original government survey, found the township corners only, then (the other section and quarter-section corners being missing) ran a straight line from one township corner to another, and on this line placed the quarter and section corners, but did not take any testimony to ascertain the lines or corners of the original survey; did not attempt to prove his lines or corners by re-establishing the missing corners from all of the nearest known original corners, in all directions; did not sufficiently regard the field-notes; and did not, where the original monuments had disappeared, regard the boundary lines long recognized and acquiesced in. Held that such a survey is incomplete and can not be approved as the true and correct determination of the boundaries and corners, as originally established by the government.[21]

[18]Beardsley v. Crane, 52 Minn. 537, 54 N. W. 740.

[19]Chan v. Brandt, 45 Minn. 93, 47 N. W. 461.

[20]Goroski v. Tawney, 121 Minn. 189, 141 N. W. 102.

[21]Reinert v. Brunt, 42 Kans. 43, 21 Pac. 807.

CHAPTER XVI

EVIDENCE OF LOCATION OF CORNERS OR LINES

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400. Declarations of surveyors since deceased.
401. Positive and uncontradicted testimony as to corner.
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417. Depositions of deceased surveyor taken in other case.
418. Deceased surveyor's ancient plans, notes, etc., admissible.
419. Declarations of interested persons since deceased.

§ 397. **Generally.**—A surveyor is not always familiar with the kind of evidence to which he may resort to aid him in re-establishing a lost or obliterated corner or to retrace an obliterated line. He knows he may always use the field-notes and such accessories as may be mentioned therein to aid him in locating a corner. He knows that natural features found in the topography of the country, such as streams, marshes, swamps, ledges, rocks, etc., may be of material assistance to

him in relocating lines and corners in all cases to which reference is made in the field-notes. He knows, too, that line-trees to which reference is made in the notes and which can be identified, are permanent monuments of the true location of the line at that point.

However, when all visible evidence of the true location of the corner or line has been destroyed, he runs up against another question. He, at once, asks himself the question: Is the corner or line a lost one? Or can he resort to extrinsic evidence to show the former location of the corner or line, and, if so, to what extent and what kind of evidence may he regard and act upon? If he locates the corner by the aid of such evidence, is the corner a lost corner within the meaning of the rules laid down by the land department?

He may regard the evidence of old residents as to the location of a corner, but to what extent and under what circumstances may he regard such evidence? Will he be permitted to resort to the use of the declarations of persons since deceased as to the location of a corner, now obliterated? Can he locate a corner or line by general reputation in the community? These and kindred questions are a source of much perplexity to the surveyor. We propose to treat them briefly under this title, although we have touched on many of them in other parts of this work.

§ 398. **Testimony of those who saw corner.**—In determining the location of original corners which have been obliterated, it is clear that the surveyor may receive the testimony of those who knew where such original corner was located and to identify the spot by any means within the knowledge of the person so locating it. Testimony that fences were originally built to the corner and that such fences are now maintained in the same position as originally built should not be disregarded by the surveyor. They are monuments and should be given great weight in the location of obliterated corners. They

will take precedence of corners established by measurements to other corners. In fact, where the testimony is clear and positive, and there are no circumstances which might cast doubt on it, they mark the original corner. And it is said: "In determining the original government lines and corners, it is proper to consider the testimony of those who saw them when discernible, their practical location made at a time when presumably in existence, acquiescence of parties, acts of public authorities with respect thereto, boundaries of contiguous tracts, and their reputation and tradition."[1]

§ 399. **Declarations of surveyor to show mistake.**—The declarations of the surveyor who made the survey are received in evidence, not only to show the true line or the true corner, but also to show certain mistakes have been made and it is said[2] that "The declarations of the surveyor who made the survey is competent evidence to show that the mistake therein is in the call for a natural object, and not in the call for a course and distance." Doubtless it would be required to be shown that such declarations were made by the surveyor while in the act of making such survey or in establishing some line or corner to which such declarations referred.[3]

§ 400. **Declarations of surveyors since deceased.**—The rule that declarations of a deceased owner with respect to a boundary are competent evidence only when made on the ground, applies also to declarations of a deceased surveyor. Such declarations are admissible as being a part of the *res gestae*. The original corner as established by the government may be proven by repute or reputation. The field-notes of a deceased surveyor are admissible as declarations contemporaneous with the work done on the ground, provided they are authenticated

[1]Rowell v. Weinemann, 119 Iowa 256, 93 N. W. 279, 97 Am. St. 310.

[2]Johnson v. Archibald, 78 Tex. 96, 14 S. W. 266, 22 Am. St. 27.

[3]Ante Ch. 12.

in some way other than by the mere declarations of the surveyor himself.[4]

§ 401. **Positive and uncontradicted testimony as to corner.**—Positive and uncontradicted testimony of competent witnesses as to the location of an original government corner, as seen by them, will prevail over the location of such corner as found by a resurvey.[5] A surveyor may use the records of a survey made by him for the purpose of refreshing his memory, although the survey was not made in accordance with the requirements of the statute. A copy of such record may be used for that purpose when it is not objected to as being a copy.[6]

§ 402. **Surveyor may testify as to declarations of old residents.**—In a processionary proceeding, never perfected, certain old people living in the neighborhood were requested to locate a corner previously marked by a gate post, and from this a surveyor ran the line. Held that, all of such old citizens being dead at the time the suit was brought to determine the boundary line, the surveyor was entitled to testify concerning such facts.[7] That is, the surveyor was permitted to testify to the declarations of such old residents made by them while in the act of pointing out the gate post, which marked the original corner and so known to them. Proper foundation should be laid before such testimony will be received.

§ 403. **Declarations of surveyor.**—The declarations of a surveyor, made at the time the survey was being prosecuted, and a part of the transaction, are admissible in evidence in establishing corners or lines run by such surveyor at the time.[8] This is the general rule and generally the private notes kept by

[4]Collins v. Clough, 222 Pa. St. 472, 71 Atl. 1077, 15 Ann. Cas. 871.

[5]Mills v. Penny, 74 Iowa 172, 37 N. W. 135, 7 Am. St. 474.

[6]Krider v. Milner, 99 Mo. 145, 12 S. W. 461, 17 Am. St. 549.

[7]Phillips v. Stewart, 133 Ky. 134, 97 S. W. 6, 134 Am. St. 441.

[8]Barclay v. Howell, 6 Pet. 498, 8 L. ed. 477; Ellicott v. Pearl, 1 McLean 206, Fed. Cas. No. 4386.

a surveyor at the time of making a survey are admissible as declarations.[9] But the declarations of a surveyor which contradict his official return or record are clearly not evidence, nor should they be received, where he has no power to exercise discretion, as explanatory of his return, while he is still living and may be examined as a witness.[10] Declarations of persons to establish public or general rights may be shown, and it is not essential to the admission of such declarations that the witness testifying to them should be able to state the name of the person who made the declaration.[11]

§ 404. **Declarations as to private boundaries.**—It is the rule in England that declarations as to boundary lines will not be received except where the line is one of general and public interest.[12] This is not the general rule in this country as will be seen by an examination of the authorities. The rule is illustrated in the case of Morton v. Folger,[13] where the facts were: Suit by A v. X to recover certain lands, a part of a large tract, concerning which A had prior thereto brought suit against other parties as to certain other parts. In a prior suit a certain surveyor had testified as to certain boundaries. The same boundaries were in dispute in the suit at bar. The surveyor having died, it was held that his previous testimony was admissible. The court says: "It is not necessary, however, according to the authorities in the majority of the American states, that the hearsay, to entitle it to be received, should be general, or relate to boundaries in which the public or numerous persons are interested. It may be limited to particular facts embracing the declarations of a single individual, provided such individual had, from his situation, the means of knowledge, and was disinterested in the matter and may relate

[9]Detwiler v. Toledo, 13 Ohio Cir. Ct. 579.

[10]Barclay v. Howell, 6 Pet. 498, 8 L. ed. 477.

[11]Moseley v. Davies, 11 Price 162.

[12]Doe v. Thompson, 14 East 323, 22 N. H. 217.

[13]Morton v. Folger, 15 Cal. 275.

only to the boundary of a private entry." In Harriman v. Brown[14] we find the court saying: "Because we have not manors, shall we therefore lose the benefit of the rule which considers boundary as matter of reputation, and permits hearsay evidence of its locality? If a like state of things exists among us, if the principle will be found to apply in its utmost strictness, shall we reject the evidence because the case is not identical? By no means." In Wooster v. Butler[15] the court permitted two aged men to testify that when they were young they heard old men, since deceased, say that there was a traveled road or highway over a certain piece of land. The location of the highway was a fact tending to show the location of the private boundary claimed by the plaintiff. The court lays down the rule that the old doctrine has been extended, "to prove the boundaries of lands between individual proprietors."

§ 405. **Evidence of common repute as to location of boundary or corner.**—Such evidence according to the English rule is admissible only as to public boundaries or corners. According to the American rule, the clear weight of authority is to the effect that not only public boundaries but also private boundaries and private corners are subject to the rule. In Thoen v. Roche,[16] the court says: "There is considerable difference between the English and many American authorities in the application of the rule which admits evidence of common repute on the question of boundaries. The English decisions confine it to cases of boundaries that are matters of public or general interest, such as boundaries of counties, towns, parishes, or manors. Many American authorities go beyond this, some going so far as to apply the rule to cases of purely private boundaries, where no one has any interest in

[14]Harriman v. Brown, 8 Leigh (Va.) 697.

[15]Wooster v. Butler, 13 Conn. 309.

[16]Thoen v. Roche, 57 Minn. 139, 58 N. W. 686, 47 Am. St. 600 and note.

the question but the adjoining estates. Some of those are without the support of the reason for the rule. The rule rests on necessity, better evidence of the boundary having ceased to exist, and is justified on the theory that where many persons, members of a community more or less extensive, are interested in a common boundary, they will know where it is, and their common assent will prove what they know."

"Boundaries and monuments for boundaries under the United States system of surveys come within the reason for the rule, and within its application, even under the English decisions. In the first place, the establishment of such boundaries is a public act, and not merely a private act or agreement between two owners of contiguous estates. In the second place, it may, and usually does, come to affect the interest of many persons. Thus the location of the quarter-section post affects a boundary of eight quarter sections and thirty-two quarter-quarter sections. And in the third place, highways are frequently laid out, and school districts may be established with reference to such boundary lines. We are, therefore, of the opinion the evidence was competent."[17]

In the Thoen case, the court admitted without objection evidence of common repute in the neighborhood that the stake set by the surveyor located the corner correctly. Also, the court received evidence that by common report, the quarter-corner was right in the center of the highway. And it is said that a boundary line long recognized and acquiesced in, is generally better evidence of where the true line should be, than a survey made after the original monuments have disappeared.[18]

[17]Thoen v. Roche, 57 Minn. 139, 58 N. W. 686, 47 Am. St. 600.

[18]Tarpenning v. Cannon, 28 Kans. 565; Shaffer v. Weech, 34 Kans. 595, 9 Pac. 202; Reinert v. Brunt, 42 Kans. 43, 21 Pac. 807; Stewart v. Carleton, 31 Mich. 270; Gregory v. Knight, 50 Mich. 61, 14 N. W. 700; Thoen v. Roche, 57 Minn. 139, 58 N. W. 686, 47 Am. St. 600.

Upon making a resurvey the question is not where an entirely accurate survey would locate the lines, but where did the original survey locate such lines. And it is said upon that question, the best possible evidence is usually to be found in the practical location of the lines made at a time when the original monuments were presumably in existence.[19]

§ 406. **Maps as evidence.**—It is error to admit in evidence a map made by a United States surveyor without the accompanying field-notes. Where the certificate of a commissioner of the state land office, attached to a map, fails to state that it is a true copy of any map in his office, and fails to give a true copy of the field-notes of the survey of the property represented by the map, as provided by How. St. 5243, the map is not admissible in evidence.[20] This decision was made under the Michigan statutes cited above and would not be authority except under a similar statute. The statute provided that the certificate must show the map to be a true copy of field-notes, map, etc., of the originals on file and may then be used in evidence when "title or boundary of any land" is in question. The certificate to the exhibit did not comply with the statute.

§ 407. **An ancient plan of town from natural source.**—An ancient plan of a town, without date, much worn, purporting to have been made by one, P., obtained from the possession of one, G., a surveyor still living, but an aged man whose faculties were much impaired, and who, more than thirty years before, was town clerk of such town and at the time the plan was kept among the records of the town, and was much used by the inhabitants. By the record, it appeared that in 1745, P. and another were appointed to survey the land into town lots, and did make such survey. Held that the plan was admissible

[19]Diehl v. Zanger, 39 Mich. 601; Stewart v. Carlton, 31 Mich. 270.

[20]Willson v. Hoffman, 54 Mich. 246, 20 N. W. 37.

in evidence in a case in which the locations of the lots and lines of such survey were in question.[21]

§ 408. **Undisputed line in another town.**—An undisputed line in another town may be given in evidence in establishing a disputed line in the town in question, where the evidence shows the lines were originally run to the same corner. The fact that the line in the other town is undisputed makes out a strong case for the admission of evidence of its location in fixing the true location of the other line. If such line was also in dispute clearly, the evidence would not be admissible.[22] Of course, it should clearly appear that such line was undisputed and that it was reputed to be in the place of the original location.

§ 409. **Location of one line by another.**—Where the location of a line between two counties was uncertain and disputed, and the line between adjoining lands coincided with the county line, which was claimed by both sides to be a straight line, evidence was admissible to show that for a considerable distance south of the place where the line was in dispute, owners of land in the two counties, whose lands were bounded by the county line, had built fences up to a certain line and recognized it as being the county line, and had so bounded their possessions for twenty years or more; and that the line run between lands of the parties by processions was a continuation of the line so recognized.[23] This, of course, is a practical location of the line by the parties in interest at a time when the original posts were presumably in existence. As we have seen, courts are prone to disturb lines long abided by.[24]

§ 410. **Ancient fences.**—Ancient fences built on what were supposed to be boundary lines of the tract of land in dispute and maintained for at least thirty and probably fifty years, are

[21]Gibson v. Poor, 21 N. H. 440, 53 Am. Dec. 216.

[22]Gibson v. Poor, 21 N. H. 440, 53 Am. Dec. 216.

[23]Ivey v. Cowart, 124 Ga. 159, 52 S. E. 436, 110 Am. St. 160.

[24]Ante Ch. XV.

held, in this case, to fix the correct boundaries, as against modern surveys conflicting therewith and with each other.[25] Testimony should be given of the correct original location of the line upon which such fence is or was built. If it can be shown that the fence was built at a time when the original corners were still standing, the presumption is that it was built on the true line. As to these facts the testimony of those who made the original survey or were present when it was made, or saw the stake standing which marked the true corner, may be received as to the location of the fence on the true line. It has been held that the declarations of a surveyor, since deceased, when made on the ground, are competent evidence as to the true boundary of a tract; so also his field-notes, if authenticated otherwise than by his mere declarations.[26] An ancient survey of a field or manor is admissible evidence of its boundaries.[27]

But the weight accorded to ancient fences of the true line between tracts of land is not so great where such line was not at any time marked by original monuments.[28] Evidence that a fence was built according to stakes set by a surveyor who made the original plat and that said fence has been maintained on substantially the same line for more than forty years; it was held the fence was built on the true line.[29]

The courts have taken very decided stands on the ancient fence principle.[30]

§ 411. **Testimony of surveyors.**—Where there is a dispute as to the boundary, the surveyor who established such boun-

[25]Wunnicke v. Dederich, 160 Wis. 462, 152 N. W. 139.

[26]Collins v. Clough, 222 Pa. St. 472, 71 Atl. 1077, 15 Ann. Cas. 871.

[27]62 J. P. 661.

[28]Wollman v. Ruehle, 104 Wis. 603, 80 N. W. 919.

[29]Racine v. Emerson, 85 Wis. 81, 55 N. W. 177, 39 Am. St. 819.

[30]Toby v. Secor, 60 Wis. 310, 19 N. W. 99; Welton v. Poynter, 96 Wis. 346, 71 N. W. 597; Illinois Steel Co. v. Budzisz, 139 Wis. 281, 119 N. W. 935, 121 N. W. 362.

dary may be called as a witness to identify the boundary.[31] Where a surveyor testifies the probative force of his testimony is for the jury.[32] Testimony of a surveyor as to certain marks and monuments made by a former surveyor is not expert testimony but individual.[33] Where a surveyor testifies he may use his notes to refresh his memory by a reference to such notes although the survey was not made according to statute.[34] Surveyor may testify to declarations made to him by old residents, pointing out a certain corner to be at a gate post then standing, at a time when he was retracing the line running to said corner, the said old residents being at the time of the trial deceased.[35]

§ 412. **Parol evidence to show boundaries.**—Latent ambiguities may be explained by parol, yet parol evidence is not admissible, in the absence of fraud, mistake or surprise, to vary in any way the description in a deed which is clear.[36] So where the description in a deed is clear and understandable it can not be shown that another tract of land was intended.[37] Parol evidence is admissible to apply the description in a deed to the land conveyed.[38] It has been held that parol evidence will not be received to show that a marked tree is the boundary line in a case where the line was described in a deed by courses and distances and the marked tree was not mentioned in the deed.[39] If the calls of a deed conflict, extrinsic evidence may

[31]Washington Rock Co. v. Young, 29 Utah 108, 80 Pac. 382, 110 Am. St. 666.

[32]Arneson v. Spawn, 2 S. Dak. 269, 49 N. W. 1066, 39 Am. St. 783.

[33]Barron v. Cobleigh, 11 N. H. 557, 35 Am. Dec. 505.

[34]Krider v. Milner, 99 Mo. 145, 12 S. W. 461, 17 Am. St. 549.

[35]Phillips v. Stewart, 133 Ky. 134, 97 S. W. 6, 134 Am. St. 441.

[36]Fratt v. Woodward, 32 Cal. 219, 91 Am. Dec. 573; McAfferty v. Conover's Lessee, 7 Ohio St. 99, 70 Am. Dec. 57.

[37]Benedict v. Gaylord, 11 Conn. 332, 29 Am. Dec. 299.

[38]Summerlin v. Hesterly, 20 Ga. 689, 65 Am. Dec. 639; Emery v. Webster, 42 Maine 204, 66 Am. Dec. 274.

[39]Wynne v. Alexander, 29 N. Car. 237, 47 Am. Dec. 326.

be resorted to, to determine the conflict and show the land embraced in the description.[40]

§ 413. **Identify monument—Ambiguous description.**—Parol evidence is often admissible to identify and ascertain the locality of a monument called for by a description in a deed.[41] Common reputation may be resorted to to identify monuments, if of a public or quasi-public nature.[42] When the description is ambiguous, the practical construction given it by the parties themselves may be shown as bearing on the correct construction.[43] In all such cases, the surveyor will be called upon to exercise his ingenuity in determining the evidence which may be used to identify the location of the monument in dispute.

§ 414. **Original corners and patent inconsistent.**—A mistake in the call of a patent may be corrected, by a reference to the plat and certificate of survey, which are evidence of the original position of the corners, and when they can be ascertained they form the boundary, though variant from the description contained in the patent.[44] This is a statement of the general rule in another way, that if the original corners or lines can be found either because still standing, or by a resort to proper evidence, they must be adhered to by the surveyor, even though inconsistent with the patent description or inaccurate.

§ 415. **Marked trees—Courses and distances—Parol evidence.**—Marked trees on a line or witnessing a corner should control both courses and distances.[45] Natural objects called

[40]Brand v. Daunoy, 8 Mart. N. S. (La.) 159, 19 Am. Dec. 176; Johnson v. Archibald, 78 Tex. 96, 14 S. W. 266, 22 Am. St. 27.

[41]Waterman v. Johnson, 13 Pick. (Mass.) 267.

[42]Griffin v. Graham, 8 N. Car. 96, 9 Am. Dec. 619; Boardman v. Reed, 6 Pet. (U. S.) 328, 8 L. ed. 415; McCoys v. Galloway, 3 Ohio 282, 17 Am. Dec. 591.

[43]Choate v. Burnham, 7 Pick. (Mass.) 274.

[44]Steele's Heirs v. Taylor, 3 A. K. Marsh. (Ky.) 225, 13 Am. Dec. 151.

[45]Ayers v. Watson, 137 U. S. 584, 34 L. ed. 803, 11 Sup. Ct. 201.

for in a description may be located by parol testimony.[46] Where there are known monuments, courses and distances are not material and they may be disregarded.[47] Courses and distances yield to fixed monuments or natural and located objects.[48] Courses and distances yield to a call for a natural object like a river, spring, or marked line.[49] Courses and distances may be shortened or lengthened and courses varied so as to conform to natural monuments or objects called for.[50]

§ 416. **General reputation—Declarations—Private boundaries.**—In the state of Connecticut, general reputation is admissible for the purpose of showing not only public boundaries, but also the boundaries of lands of individual proprietors.[51] And the rule was declared in the action of Daggett v. Shaw[52] to be, "that the declarations of ancient persons, made while in possession of land owned by them, pointing out the boundaries on the land itself, and who are deceased at the time of trial, are admissible in evidence, when nothing appears to show that they were interested in thus pointing out their boundaries; and it need not appear affirmatively that the declarations were made in restriction of, or against, their own

[46]Blake v. Doherty, 5 Wheat. (U. S.) 359, 5 L. ed. 109.

[47]Higuera v. United States, 5 Wall (U. S.) 827, 18 L. ed. 469.

[48]Bartlett Land & Lumber Co. v. Saunders, 103 U. S. 316, 26 L. ed. 546; Shipp v. Miller, 2 Wheat. (U. S.) 316, 4 L. ed. 248; Security Land & Exploration Co. v. Burns, 193 U. S. 179, 48 L. ed. 662, 24 Sup. Ct. 425; Reid v. Mitchell, 95 Ind. 401; Backus v. Detroit, 49 Mich. 110, 13 N. W. 380, 43 Am. Rep. 447; Brown v. Huger, 21 How. (U. S.) 305, 16 L. ed. 125; Henderson v. Hatterman, 146 Ill. 555, 34 N. E. 1041.

[49]Newsom v. Pryor, 7 Wheat. (U. S.) 7, 5 L. ed. 382.

[50]McIver's Lessee v. Walker, 9 Cranch 173, 3 L. ed. 694; Security Land & Exploration Co. v. Burns, 193 U. S. 179, 48 L. ed. 622, 24 Sup. Ct. 425; Langdon v. New York, 93 N. Y. 129; Coles v. Yorks, 36 Minn. 391, 31 N. W. 353.

[51]Kinney v. Farnsworth, 17 Conn. 355.

[52]Daggett v. Shaw, 5 Metc. (Mass.) 223.

rights." This doctrine has been affirmed.[53] It is fully recognized by Shaw, C. J., and extended to declarations of a person in possession under a contract of purchase. The case of Daggett v. Shaw is cited approvingly by the court.[54]

It is held[55] that "the declaration of a deceased owner of land, tending to show that a corner had been established by him and other adjoining owners is admissible, although the declarant and witnesses were not on the land at the time it was made for the reason, it appearing, that the deceased declarant, had adequate knowledge, and it is the best evidence the case admits of, and upon the ground of necessity, and also when it is an admission against the party's interest."

§ 417. **Depositions of deceased surveyor taken in other case.**—It is held[56] that "The deposition of a surveyor who ran the boundary lines of a grant, taken in one action, is admissible in another action between different parties, as hearsay evidence, upon the location of such lines after his death." In the case just cited, the surveyor had given his deposition in another action as to the position of the southern boundary of the Sutter grant, offered in connection with the map made by him and it was held admissible in the action at bar. The location of the line in the former trial was necessary in the latter trial. The deposition was admitted on the ground of necessity, it appearing the surveyor was in a position to know the location of the boundary and was, at the time the declaration was made, disinterested, and now deceased.

§ 418. **Deceased surveyor's ancient plans, notes, etc., admissible.**—"A deceased surveyor's ancient plans, minutes, notes, or field-book clearly describing and identifying the lots

[53]Bartlett v. Emerson, 7 Gray (Mass.) 174; Wood v. Foster, 8 Allen. (Mass.) 24, 85 Am. Dec. 671; Niles v. Patch, 13 Gray (Mass.) 254.

[54]Royal v. Chandler, 83 Maine 150, 21 Atl. 842.

[55]Smith v. Forrest, 49 N. H. 230.

[56]Morton v. Folger, 15 Cal. 275.

and bounds in controversy are admissible in evidence."[57] This doctrine was affirmed.[58] The return and map of the deputy surveyor who made the survey are competent evidence in a case where a boundary is in dispute.[59] Ancient maps and surveys are evidence to elucidate and ascertain boundaries and fixed monuments.[60] In the case last cited, a party claimed to what was known as the "Taylor Line." On the trial he offered a plan dated forty-five years previously, proved to have been in the possession of a former owner who claimed by it thirty-five years before, and proved also to be in the handwriting of Taylor, who was a surveyor, and was dead. Held to be proper evidence of boundary.

In these cases the court will look into the source from which the ancient survey, plan, or document came and will only receive such documents when they come from a place where they might naturally be found. In a Vermont case,[61] it was held that the original survey plan in connection with evidence that it was passed from the defendant's grantor to the defendant at the time he conveyed the land, was proper evidence of claim of title, and, as the surveyor was deceased, it was admissible the same as an oral declaration by the surveyor, to the same effect as the survey would have been.[62]

§ 419. **Declarations of interested persons since deceased.**— H and K, deceased, were well acquainted with the location of the division line in dispute. H had owned both of the lots, and K had owned one of them. Neither was interested to misrepresent as to the true location of said line. Held their declarations concerning the location of said line, made upon or near it, were admissible in evidence, although it might be fairly claimed that they were interested in the land at the time

[57]Smith v. Forrest, 49 N. H. 230.

[58]Lawrence v. Tennant, 64 N. H. 532, 15 Atl. 543.

[59]Curtis v. Aaronson, 49 N. J. L. 68, 7 Atl. 886, 60 Am. Rep. 584.

[60]McCausland v. Fleming, 63 Pa. 36.

[61]Kidder v. Kennedy, 43 Vt. 717.

[62]Child v. Kingsbury, 46 Vt. 54; Oatman v. Andrew, 43 Vt. 466.

the declarations were made.[63] It is said[64] that, "Upon the question of ancient boundaries or corners, the declarations of deceased persons as to such boundaries or corners may be given in evidence, provided such persons had peculiar means of knowing the fact in question, and the declarations are not liable to the suspicion of bias from interest. Such are the declarations of a surveyor and chain-carriers engaged on the original survey, the owner of the tract, or of an adjoining tract calling for the same boundaries, tenants, processioners, and others possessed of accurate information of the fact."

The Texas court[65] held that, "General reputation in regard to the boundary lines of an ancient survey, formed long before the suit in which it is offered in evidence was begun, and which boundary was of sufficient interest to have been the subject of note and comment in the neighborhood, is admissible in evidence." This is on the theory that government corners and lines are of practical interest to many persons owning land in the vicinity where those corners or lines are located.

[63]Child v. Kingsbury, 46 Vt. 47.

[64]Fry v. Stowers, 92 Va. 13, 22 S. E. 500.

[65]Clark v. Hills, 67 Tex. 141, 2 S. W. 356.

CHAPTER XVII

BOUNDARIES BETWEEN STATES AND NATIONS

Sec.
420. Generally.
421. Boundaries between states.
422. Jurisdiction of islands.
423. Jurisdiction of rivers on borders of states.
424. Jurisdiction between states.
425. Boundary and ownership.

§ 420. **Generally.**—The boundaries between nations are usually fixed by treaty, and, where such is the case, that document should be resorted to in determining such boundaries. But even when the limits are so fixed, disputes as to the true boundary frequently occur. This was the case as to that part of the boundary between the United States and Great Britain bordering on the state of Maine. For many years this was the subject of a bitter contention between the two countries, and it was not settled until Daniel Webster, as Commissioner on the part of the United States, and Lord Ashburton, on the part of Great Britain, after taking much evidence, and after the most careful investigation permanently fixed and marked that boundary.

So also, the northwest boundary between the United States and Great Britain was the subject of a warm dispute for many years until it was finally compromised, the line fixed and permanently marked, by commissioners of the two countries. Where the treaty does not mark, the exact boundary between nations, it is generally the subject of much discussion afterwards. The meaning of the language used by the contracting parties is subject to different constructions, and it is often necessary to take and consider much evidence and refer to plans of extensive surveys by both countries.

§ 421. **Boundaries between states.**—The boundaries of the original thirteen states were not always fixed with exactness. They were generally the subject of a grant or grants from the sovereign of England or other country. Often those grants were very imperfect and disputes have arisen between those states as to the true boundary. The federal courts have been called upon to construe those old grants and determine such boundaries. That court has held that evidence as to which state had exercised jurisdiction of the territory in dispute may be received and considered.[1]

The boundaries of states other than the thirteen original states are generally fixed by the enabling act of Congress, admitting such state as a member of the Union. In some states the boundary as so fixed will be found in the statutes of the state—not as part of the state laws—but as a matter of information, being a copy of the enabling act.[2]

As an illustration of such acts, we here quote from the enabling act for Wisconsin, the language used with reference to its boundaries:

"Beginning at the northeast corner of the state of Illinois, that is to say, at a point in the center of Lake Michigan, where the line of forty-two degrees and thirty minutes of north latitude crosses the same; thence running with the boundary line of the state of Michigan through Lake Michigan, Green Bay, to the mouth of the Menomonie river; thence up the channel of said river to the Brule river; thence up said last mentioned river to Lake Brule; thence along the southern shore of Lake Brule in a direct line to the center of the channel between Middle and South Islands, in the Lake of the Desert, thence in a direct line to the headwaters of the Montreal river, as marked upon the survey made by Captain Cramm; thence down the main channel of the Montreal river to the middle of Lake

[1]Missouri v. Kentucky, 78 U. S. (11 Wall.) 395, 20 L. ed. 116.

[2]Wis. Const., Art. 2; Wis. Stat. (1921) p. 17; Minn. Stat. (1913) 2074.

Superior; thence through the center of Lake Superior to the mouth of the Saint Louis river; thence up the main channel of said river to the first rapids in the same, above the Indian village, according to Nicollet's map; thence due south to the main branch of the river Saint Croix; thence down the main channel of the said river to the Mississippi; thence down the center of the main channel of that river to the northwest corner of the state of Illinois; thence due east with the northern boundary of the state of Illinois to the place of beginning as established by "An act to enable the people of the Illinois territory to form a constitution and state government, and for the admission of such state into the Union on an equal footing with the original states," approved April eighteenth, eighteen hundred and eighteen."

§ 422. **Jurisdiction of islands.**—"And be it further enacted, That, to prevent all disputes in reference to the jurisdiction of islands in the said Brule and Menomonie rivers, the line be so run as to include within the jurisdiction of Michigan, all the islands in the Brule and Menomonie rivers (to the extent in which said rivers are adopted as a boundary), down to and inclusive of the Quincsec falls of the Menomonie; and from thence the line shall be so run as to include within the jurisdiction of Wisconsin all the islands in the Menomonie river, from the falls aforesaid down to the junction of said river with Green Bay: provided, that the adjustment of boundary, as fixed in this act, between Wisconsin and Michigan, shall not be binding on Congress unless the same shall be ratified by the state of Michigan, on or before the first day of June, one thousand eight hundred and forty-eight."

§ 423. **Jurisdiction of rivers on borders of state.**—"And be it further enacted. That the said state of Wisconsin shall have concurrent jurisdiction on the Mississippi and all other rivers and waters bordering on the said state of Wisconsin, so far as the same shall form a common boundary to said state and

any other state or states now or hereafter to be formed or bounded by the same, and said river and waters, and the navigable waters leading into the same, shall be common highways and forever free, as well to the inhabitants of said state as to all other citizens of the United States, without any tax, duty, impost, or toll therefor."

§ 424. **Jurisdiction between states.**—The courts will take judicial notice of the boundaries of the different states. The states of Illinois and Michigan are adjoining states, the boundary line being in the center of Lake Michigan.[3] Where a body of water is the boundary between two states, unless a different boundary is fixed by treaty or by statute, the center of such body of water or the thread of the stream, if a river, is the boundary between the two states. The district court of the eastern district of Wisconsin has no jurisdiction of an indictment for an assault committed on a vessel on Lake Huron within the boundary of the eastern district of the state of Michigan.[4] The term, "high seas," as used in Sec. 5346 U. S. Stat. is applicable to the open uninclosed waters of the Great Lakes, between which the Detroit River is a connecting stream. The courts of the United States have jurisdiction to try a person for an assault committed on a vessel belonging to a citizen of the United States, when such vessel is in the Detroit River, out of the jurisdiction of any state, and within the territorial limits of the Dominion of Canada.[5] The Great Lakes are "high seas" within the meaning of the law, and it is said[6] that, "The Great Lakes possess every essential characteristic of seas. They are of large extent in length and breadth; they are navigable the whole distance in either direction by the largest vessels known to commerce; objects are not distin-

[3]Thorson v. Peterson, 9 Fed. 519.

[4]United States v. Peterson, 64 Fed. 145.

[5]United States v. Rodgers, 150 U. S. 249, 37 L. ed. 1071, 14 Sup. Ct. 109.

[6]United States v. Rodgers, 150 U. S. 256, 37 L. ed. 1074, 14 Sup. Ct. 109.

guishable from the opposite shores; they separate, in many instances, states, and in some instances constitute the boundary between independent nations, and their waters, after passing long distances, debouch into the ocean?"[7]

A crime committed on the Mississippi river, adjacent to the state of Wisconsin, may be tried in a county of such state bordering on such river.[8]

It is plain that in the case of United States v. Peterson,[9] that the crime was committed within the state of Michigan, i. e., on that part of Lake Huron lying between the center line thereof and the state of Michigan, and, therefore, the District Court of the Eastern District of Michigan had jurisdiction, and not the District Court of the Eastern District of Wisconsin.

§ 425. **Boundary and ownership.**—The various states own the bed of the Great Lakes to the center line thereof subject to the right of the general public to navigate such waters.[10] This is the general rule, which may be modified by statute, treaty, or cession. Lake Michigan, which lies wholly within the territory of the United States, is not a "high sea," in the sense that it is open and uninclosed and a free highway of adjoining nations or peoples. It is under the exclusive domain of the United States, and is free to the commerce of other nations, not by nature, but only by the grace of our government.[11] The sovereignty of Wisconsin extends to the center line of Lake Michigan and its laws, so far as they do not conflict with the federal laws, are operative within the boundary of the state. The usual three mile limit, as applied to the "high

[7]Genesee Chief 12 How. (U. S.) 443. 13 L. ed. 1058.

[8]State v. Cameron, 2 Chand. (Wis.) 172.

[9]United States v. Peterson, 64 Fed. 145.

[10]Illinois Cent. R. Co. v. Illinois, 146 U. S. 387, 36 L. ed. 1018, 13 Sup. Ct. 110.

[11]Bigelow v. Nickerson, 70 Fed. 113, 30 L. R. A. 336.

seas," does not restrict the sovereignty of the several states bordering on the Great Lakes.[12]

So much of Lake Michigan, as is included by lines, one running north from the point where our eastern boundary strikes the southern boundary of the lake to a point in the middle of the lake, in north latitude 42 degrees and 30 minutes, and thence west along that parallel to the western border of the lake, is within the limits of Illinois.[13] The northern boundary of the state of Ohio is the line between the United States and Canada, as fixed by treaty and established by act of Congress.[14] It is the rule that where a river is the boundary between two states and there is no agreement respecting it, each holds to the middle of the main channel.[15] The boundary of Kentucky extends to low-water mark only on the western side of the Ohio, and it does not cover an island on the western or N. W. bank, separated from the main land by a channel.[16]

Georgia ceded to United States in 1802, all the land "west of a line, beginning on the western bank of the Chattahoochie river" and "running thence up the said river Chattahoochie, and along the western bank thereof." It was held in construing this language that Georgia retained the bed of the river as far as the line marked by the running water, or in other words, to the dry land on the west bank.[17]

Wolf Island in the Mississippi, opposite Kentucky and Missouri, is a part of the state of Kentucky, and not a part of Missouri. Settled by testimony of witnesses as to which state exercised jurisdiction: as to where the main channel of the Mississippi river had been when the boundary between the

[12]Bigelow v. Nickerson, 70 Fed. 113, 30 L. R. A. 336.

[13]Norway v. Jensen, 52 Ill. 373.

[14]Edson v. Crangle, 62 Ohio St. 62, 56 N. E. 647.

[15]Handly v. Anthony, 18 U. S. (5 Wheat.) 374, 5 L. ed. 113; Fleming v. Kennedy, 4 J. J. Marsh, Ky. 155.

[16]Handly v. Anthony 18 U. S. (5 Wheat.) 374, 5 L. ed. 113.

[17]Howard v. Ingersoll, 54 U. S. (13 How.) 381, 14 L. ed. 189.

states was fixed: by the character of the soil and trees on the Missouri and Kentucky sides respectively as compared with that of island: and by this natural change in the channel by washing.[18] Virginia conveyed to United States territory bounded in part as follows: "to the territory or tract of country within the limits of the Virginia's charter situate, lying and being to the northwest of the river Ohio." Under this deed boundary was fixed at low-water mark, as it then existed, on the north side of that river. Held that such line now remains the boundary between Indiana and Kentucky.[19] Where the middle of a river is the boundary between two states, that boundary follows any changes in the stream by imperceptible means.[20] The "middle of the Mississippi river," "the center of the main channel of that river;" the "middle of the main channel of the Mississippi river" used in the enabling acts admitting Illinois, Wisconsin, Missouri, and Iowa into the Union, are all synonymous terms and mean the "main navigable channel."[21]

The state of Delaware within the "twelve mile circle" extends across the Delaware river to low-water mark on the Jersey side of that river.[22]

Where a state has consistently held and exercised jurisdiction of certain islands for many years it will be evidence of the construction of parties of the language of the grants.[23] The "middle of the main channel" of the Mississippi river means what it says where there are two channels and the boundary between states would be the middle of the larger channel.[24] Where the boundary line is "the middle of the channel"

[18]Missouri v. Kentucky, 78 U. S. (11 Wall.) 395, 20 L. ed. 116.

[19]Indiana v. Kentucky, 136 U. S. 479, 34 L. ed. 329, 10 Sup. Ct. 1051,

[20]Nebraska v. Iowa, 143 U. S. 359, 36 L. ed. 186, 12 Sup. Ct. 396.

[21]Iowa v. Illinois, 147 U. S. 1, 37 L. ed. 55, 13 Sup. Ct. 239.

[22]Re Pea Patch Island, Fed. Cas. No. 18311 (1 Wall. Jr. Append.)

[23]Keyser v. Coe, Fed. Cas. No. 7750 (9 Blatchf. 32.)

[24]Cessill v. State, 40 Ark. 501.

of a bay or harbor, the thread of the deepest water is not meant, but the space within which boats can and do usually pass.[25]

The boundary between Iowa and Illinois is the middle of the principal channel of the Mississippi river.[26] The state of Ohio, on the side bounded by the Ohio, extends to ordinary low-water mark on the Ohio side of that river.[27]

The boundary between New York and New Jersey, south of the 41st degree of north latitude, is the middle of the Hudson river, of New York Bay, of the waters between Staten Island and New Jersey, and of Raritan Bay to the sea, but islands in these waters and lying west of the middle thereof belong to the state of New York.[28]

[25]Rowe v. Smith, 51 Conn. 266, 50 Am. Rep. 16.

[26]Keokuk & H. B. Co. v. People, 145 Ill. 596, 34 N. E. 482.

[27]Booth v. Shepherd, 8 Ohio St. 243.

[28]People v. Central Ry. Co., 42 N. Y. 283.

CHAPTER XVIII

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§ 426. **Generally.**—One of the most important duties the surveyor is called upon to perform in connection with his work, and the attorney in advising his client, is as to the construction or meaning to be given to the words used by the grantor or maker of an instrument, containing a description of property to be surveyed or under consideration. Not infrequently the surveyor is confronted with such a question, in the country, many miles from his office. He has no authority to consult, and must make his decision, more or less in the dark, so to speak. For this reason, the author has deemed it most advisable to assemble the more important rules of construction applicable to such instruments and cite authorities of the courts sustaining such principles.

No effort will be attempted in this chapter to be exhaustive in the citations of the rulings of the various courts but at least one citation to each principle or rule of construction will be made. The treatment of the subject will be ample to enable the surveyor to act with intelligence in most cases. Using the citations given as a basis, the attorney can go into the subject as extensively as he may desire.

§ 427. **Valid and effective.**—Instruments will be so construed as to render them valid and effective, rather than void and ineffective. It will be presumed a party signing a deed or other instrument intended to make a valid one and so become effective.[1]

§ 428. **False and inconsistent descriptions.**—Where one part of a description in a deed is false and impossible, but, by rejecting that part, a perfect description remains, such false and impossible part should be rejected and the deed held good.[2]

§ 429. **Words may be rejected as surplusage.**—Where the word "west" was used referring to the range, instead of "east," it may be rejected as surplusage, especially where the

[1]Anderson v. Baughman, 7 Mich. 69, 74 Am. Dec. 699.

[2]Anderson v. Baughman, 7 Mich, 69, 74 Am. Dec. 699.

proper county is given and sufficient remains to identify the land with certainty.[3]

§ 430. **Construed most strongly against grantor.**—Where a deed admits of two constructions, it will be construed according to that construction which makes most strongly against the grantor.[4]

§ 431. **Construction should be equitable—Not technical.**—All reasonable inferences of construction should be against the position which rests, not on equities, but on mere technicalities.[5]

§ 432. **Deed should have reasonable construction.**—A deed should be given a reasonable construction, as viewed in the light of surrounding circumstances, and a deed conveying a "right of way of an alley," implies a passage leading a way from the land conveyed, and not a mere open space back of the lot.[6]

§ 433. **Reference to other instruments.**—A mortgage of mill property conveyed seven different parcels of land, none of which were described by metes and bounds, but all by a reference to other deeds. Held that all of the deeds referred to were to be considered in the light of circumstances and that the mortgage conveyed, when so considered, the entire mill privileges.[7]

§ 434. **Intent gathered from entire grant.**—Ordinarily the intent which is effective in a grant is the intent expressed in the language of the grant, and such intent is ascribed by giving suitable effect to all the words of the grant, read in the light of the circumstances attending the transaction, the situation of the parties, the state of the country and the estate granted, such as its condition and occupation.[8]

[3]Du Pont v. Davis, 30 Wis. 170.
[4]Alton v. Illinois Trans. Co., 12 Ill. 38.
[5]Johnson v. Ballou, 28 Mich. 379.
[6]McConnell v. Rathbun, 46 Mich. 303.
[7]Coogan v. Burling Mills, 124 Mass. 390.
[8]Proctor v. Maine Cent. Ry. Co. 96 Maine 458, 52 Atl. 933; Herrick v. Hopkins, 23 Maine 217.

§ 435. **Latent ambiguity explained by parol testimony.**—It is the duty of the court to give meaning to a deed so far as the intention of the parties can be elicited therefrom; but the doubt in the application of the descriptive portion of a deed to external objects, usually arises from what is called latent ambiguity, which has its origin in parol testimony and must necessarily be solved in the same manner. By resorting to such testimony the meaning is made intelligible.[9]

§ 436. **Precise and general descriptions irreconcilable.**—If there be a precise and perfect description, showing that the parties actually located the land upon the earth, and another, general in its terms, and they can not be reconciled, the latter should yield to the former.[10]

§ 437. **Retain description which best subserves intention.**—Where the boundaries mentioned in a deed are inconsistent, those are to be retained which best subserve the prevailing intention as manifested on the face of the instrument.[11]

§ 438. **Long occupation of great weight.**—Long occupation of the premises pursuant to the uncertainly expressed boundary, should have much influence in the construction of the deed containing the uncertain description.[12]

§ 439. **Inconsistent descriptions.**—A father devised to one of his daughters the S. 3/4 of the S. 1/2 of the S. 1/2 of a specified quarter-section and further described it as containing fifteen acres and being fifteen rods wide by one hundred and sixty long. There was a similar devise to another, and a third was to have a strip twelve and one-half rods wide and containing twelve and one-half acres. There were three remaining daughters who were to receive the "residue share and share alike." If the devises were construed as giving the first two thirty acres each, there would have been no residue for the

[9]Reed v. Proprietor of Locks & Canals, 8 How. (U. S.) 274, 12 L. ed. 1077.

[10]Herrick v. Hopkins, 23 Maine 217; Ricker v. Barry, 34 Maine 116.

[11]Gates v. Lewis, 7 Vt. 511.

[12]Ricker v. Barry, 34 Maine 116.

last three devises. Held the first two devises covered only fifteen acres each.[13]

§ 440. **Town plats illegally recorded or not recorded.**—If the plat to which reference is made in a deed, be not legally recorded, or not recorded at all, it may still be used for the purpose of identification of the land described in the deed referring to such plat.[14]

§ 441. **Boundary recognized by parties.**—Where parties claiming under the same grantor recognize a boundary between them, and one of them afterwards conveys with reference to that boundary and without encroaching upon any rights of third persons, he and those who claim under him are bound by the description as against his grantee and a change of a recognized boundary by a resurvey will not affect the grantee's rights.[15]

§ 442. **Parol evidence of declarations of covenantor.**—Parol evidence of the acts and declarations of covenantor are admissible to show the courses and distances actually run and the monuments actually established in a previous survey, for the purpose of proving that land from which plaintiff is evicted is embraced within the description of the premises as set forth in the deed.[16] Probably such declarations must have been made before any controversy arose and must have been against the interest of the party making.

§ 443. **"Beginning at" and "bounding on land of B."**—Where land is conveyed "beginning at" and "bounded on land of B," the point of beginning and boundary is the true line of B's land, and not the line of B's occupation as shown by a fence set up and maintained by B, before and after the convey-

[13]Tewksbury v. French, 44 Mich. 100, 6 N. W. 218.

[14]Johnstone v. Scott, 11 Mich. 232.

[15]Fahey v. Marsh, 40 Mich. 236.

[16]Bates v. Tymason, 13 Wend. (N. Y.) 300.

ance with the consent of the owner of the lot conveyed, under the mistaken belief that such was the true line.[17]

§ 444. **Running to a known line.**—Where land conveyed is described in the deed as running a certain distance to an ascertained line, though without a visible boundary, such line is of itself, a monument which will control the admeasurement and fix the extent of the land conveyed.[18]

§ 445. **"Northerly" means north.**—The term "northerly" in a grant, where there is no object to direct the inclination of the line to the east or to the west, must be construed to mean north.[19]

§ 446. **Deed referring to plan.**—Where lines are laid down on a plan, and are referred to in a conveyance of land, the courses, distances, etc., on such plan, are as much to be regarded as the true description of the land, as if they were expressly recited in the deed.[20]

§ 447. **Contents yield to certain boundaries.**—Where definite and permanent boundaries are given, a deed must be considered to convey all the land within these boundaries, notwithstanding the quantity is much greater than that mentioned.[21]

§ 448. **Line center of highway.**—The inference of law is, that the conveyance of land, adjacent to a highway, carries with it, as part of the grant, the fee to the center of the highway. If the highway is to be excluded it must appear in explicit terms in the grant.[22]

§ 449. **Highway not mentioned in deed.**—Where the south boundary of a tract of land was the same as the north line of the road, it was held that the party took the fee to the center

[17]Cleveland v. Flagg, 4 Cush. (Mass.) 76.

[18]Flagg v. Thurston, 13 Pick. (Mass.) 145.

[19]Brandt v. Ogden, 1 Johns (N. Y.) 156.

[20]Davis v. Rainsford, 17 Mass. 207.

[21]Gilman v. Riopelle, 18 Mich. 145.

[22] Champlin v. Pendleton, 13 Conn. 23.

of the road, though the highway was not mentioned in the deed.[23]

§ 450. **Laying off given quantity.**—Where a given quantity of land is to be laid off on a given base, it must be included within four lines forming a square, as nearly as may be, unless that form be repugnant to the entry.[24]

§ 451. **The calls of an entry.**—If the calls of an entry do not fully describe the land, but furnish enough to enable the court to complete the location, by the application of certain principles, the court will so complete it.[25]

§ 452. **May discard less important calls.**—If a location has certain material calls, sufficient to support it, and to describe the land, other calls less material, and less incompatible with the essential calls of the entry, may be discarded.[26]

§ 453. **Quantity a leading factor in determining boundary.**—A call in a deed for metes and bounds, if clear, will prevail over a call for quantity; but where the boundaries are doubtful, quantity often becomes a controlling consideration.[27] In this case, the deed called for "one thousand fifty-six acres more or less" and made the western boundary "the summit of the ridge dividing the valley of Petaluma from Sonoma valley." There were two ridges between the two valleys. If the line be made the summit of the western ridge, it would carry one thousand seven hundred and thirty-seven and thirteen hundredths acres, about six hundred and eighty acres too much. If the eastern ridge be taken as the boundary the tract would contain one thousand sixty-seven and nineteen hundredths acres or about eleven acres more than the deed called for. The court decided that the more eastern ridge was intended.

[23]Champlin v. Pendleton, 13 Conn. 23.

[24]Massie v. Watts, 6 Cranch (U. S.) 148, 3 L. ed. 181.

[25]Massie v. Watts, 6 Cranch (U. S.) 148, 3 L. ed. 181.

[26]Massie v. Watts, 6 Cranch (U. S.) 148, 3 L. ed. 181.

[27]Winans v. Cheney, 55 Cal. 567

§ 454. **Adhere to quarter-line as more certain.**—Where there is a mistake in the government survey of a fractional lot, so that either the line of a meandered stream or a quarter-section line, both of which are called for by the survey, as constituting the boundary between two fractions, must be abandoned, the quarter-section line should be adhered to as the more certain call.[28]

§ 455. **Private way a boundary.**—Where land is bounded on a highway, it extends to the center of the way; but it is equally well settled in Maine, whatever the rule may be elsewhere, that where the land is bounded on a private way, it extends only to the side line of the way.[29]

§ 456. **Apportion excess on whole line.**—Where, in a platted block, the lots are marked on the plat as having the same number of feet each, except one, the specific dimensions of which are also marked, and a survey shows that the whole block contains more front feet than are marked on the plat, the excess must be distributed between all the lots, and not given to that lot only which differed in its dimensions from the rest.[30] The same rule holds as to apportioning the deficiency along entire line.[31]

§ 457. **Center of street the boundary.**—A grantee of a lot in a recorded plat, unless the terms of his deed or the plat exclude that construction, takes to the center of the adjoining public highway, subject to the public easement; and the fact that the description in his deed, after stating the number of his lot, gives its dimensions, exclusive of the highway, does not affect such construction.[32]

[28]Martin v. Carlin, 19 Wis. 454.

[29]Winslow v. Reed, 89 Maine 67, 35 Atl. 1017.

[30]Pereles v. Magoon, 78 Wis. 27, 46 N. W. 1047, 23 Am. St. 389.

[31]Jones v. Kimble, 19 Wis. 429; O'Brien v. McGrane, 27 Wis. 446; Westphal v. Schultz, 48 Wis. 78, 4 N. W. 136; Miller v. Topeka Land Co., 44 Kans, 354, 24 Pac. 420; Morcland v. Page, 2 Iowa 139; Martz v. Williams, 67 Ill. 306.

[32]Brown v. City of Baraboo, 98 Wis. 273, 74 N. W. 223.

§ 458. **Invalid plat.**—Where a deed conveys lots according to a recorded plat, the fact that the plat is invalid does not affect the deed.[33]

§ 459. **Adjoining property may be consulted.**—Where a description by metes and bounds is supplemented by a reference to a particular lot or subdivision of land to indicate the tract intended to be conveyed, the former, though to be preferred, by ordinary rules of construction, as the more certain expression of the intention of the grantor, will not, however, necessarily be controlling, if under all the circumstances, the land intended to be conveyed more clearly appears by the latter description.[34]

§ 460. **Monuments control over quantity.**—A definite description in a deed naming the point of beginning, the monuments, and courses and distances, followed by a statement as to the number of acres conveyed, passes only the quantity of land included in the specified boundary, though that is less than the number of acres stated.[35]

§ 461. **Government plan and quantity aid construction.**—The fact that the patent described the land as "the N. E. 1/4 of S. E. 1/4 of Sec. 8" instead of as Lot 4, does not exclude from the grant any of the land that would properly be in Lot 4, where it appears by the government plan that it was intended to pass Lot 4, which was marked as containing the same number of acres as were granted by the patent.[36] Fig. 92. The court held the description carried the point between the lake and the quarter-line.

§ 462. **Corners as actually established to govern.**—In construing a deed describing land by the government survey, the court must ascertain the corners of the survey as actually established, and not as they ought to have been established; but

[33]Young v. Cosgrove, 83 Iowa, 682, 49 N. W. 1040; Borer v. Lange, 44 Minn. 281, 46 N. W. 358.

[34]Cannon v. Emmans, 44 Minn. 294, 46 N. W. 357.

[35]Silver Creek Cement Co. v. Union Lime Co., 138 Ind. 297, 35 N. E. 125, 37 N. E. 721.

[36]Sheppard v. Wilmott, 79 Wis. 15, 47 N. W. 1054.

the presumption that the deed was intended to convey according to the established corners, may be rebutted by evidence that the parties were mistaken as to the location of the government line, and intended to convey a different tract.[37]

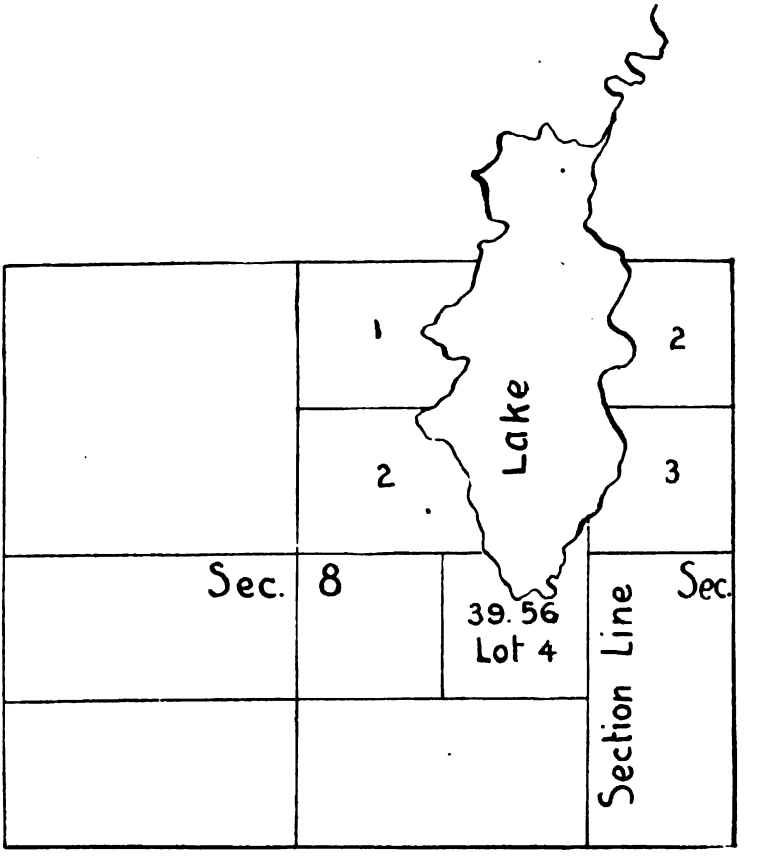


Fig. 92

§ 463. **Government patent part of description.**—The reference in a deed of conveyance of real estate to the government

[37]Squire v. Greer 2 Wash. 209, 26 Pac. 222.

patent, in the description of the property conveyed, makes the description and reference to the United States survey a part of the deed.[38]

§ 464. **Variance in measurement—Presumed in whole line.**—Variance in distances in recent measurement from former surveyed line, it is presumed, arose from an imperfect measurement of the whole line, and not from any particular part.[39]

§ 465. **Extrinsic evidence to explain calls.**—Extrinsic evidence is always admissible to explain the calls of a deed for the purpose of applying them to the subject-matter, and thus to give effect to the deed.[40]

§ 466. **Referring to other instrument.**—An exception in a deed which reads, "except the dower of fifty acres, as fully described in the deed given the C. B. Co." is not void, though the boundaries of the excepted land are not defined in any way, as reference may be had to the deed to the C. B. Co. to ascertain them.[41]

§ 467. **Evident intention governs.**—There were two inconsistent descriptions in a deed. The court held the first one to be the true description for the following reasons: 1. Because of the fact that it was evidently the intention of the court (below) to find and adjudge that the plaintiff was the owner of one hundred and fifty acres of land and to quiet title thereto. 2. Because the first description covers one hundred and fifty acres of land, and the second description not the one-half of that quantity, and 3, Because the first description is certain and reliable, while the second one is open to mistake.[42]

§ 468. **Length of outer line controlling factor.**—A deed described the land conveyed as "Commencing on the S. road

[38]**Miller v. Topeka Land Co., 44 Kans. 355, 24 Pac. 420.**

[39]Miller v. Topeka Land Co., 44 Kans. 355, 24 Pac. 420.

[40]Thompson v. Southern California M. R. Co., 82 Cal. 497, 23 Pac. 130.

[41]McAfee v. Arline, 83 Ga. 645, 10 S. E. 441.

[42]Caspar v. Jamison, 120 Ind. 58, 21 N. E. 743.

at the N. E. corner of the land owned by S, running south to the S. E. corner of said S's land, two acres; from thence easterly and parallel with said S. road two acres; thence running northerly two acres, until it strikes said road; and thence westerly along said road, two acres, to beginning, containing four acres of land, neither more nor less." Held that as the description by quantity so clearly shows the intention to limit the grant to four acres in rectangular form, and as the length of the west line is given, the intention must control distances.[43] Note—In above case the S land held practically a monument.

§ 469. **No other land owned helps out.**—The fact that the deed described the land in controversy as being "a lot ninety by four hundred and fifty feet on the northwesterly corner" of a specified street, in a specified city, county and state, does not render it void for uncertainty where the evidence showed that the grantor owned a lot of land at that corner ninety feet by four hundred and fifty feet and owned no other land in that neighborhood.[44]

§ 470. **Can surveyor locate?**—If the description in a deed is such that a surveyor, by applying the rules of surveying, can locate the same, such description is sufficient and the deed will be sustained, otherwise it will be void.[45]

§ 471. **Inquiry based on land marks.**—Where a deed contained a wrong description but the land can be precisely identified by inquiry based on the land marks referred to, the title held by the grantor is not merely equitable but legal, and may be encumbered as such.[46]

§ 472. **Meanings of technical terms help.**—A description of a tract as commencing at a given spot, "running thence one point east of south, thence one point west of north," etc., is

[43]Rioux v. Cormier, 75 Wis. 566, 44 N. W. 654.

[44]Burton v. Mullenary, 147 Cal. 260, 81 Pac. 544.

[45]Hoodless v. Jernigan, 46 Fla. 215, 35 So. 656.

[46]Dwight v. Tyler, 49 Mich. 614, 14 N. W. 567.

sufficiently accurate to be identified, since it appears that a "point" is a division of a mariner's compass equal to eleven degrees and fifteen minutes.[47]

§ 473. **Rejecting part of description.**—Where by omitting one part of a false or impossible description in a deed, a perfect description remains, the false part should be rejected, and the instrument upheld.[48] And this appears to be universal.

§ 474. **General description aided by evidence aliunde.**—A general description of land in a deed conveying the same, or in any other instrument conveying an estate, in land, which points out the subject thereof with reasonable certainty, is sufficient as to such description though evidence aliunde the instrument may be necessary to determine definitely the particular description of land.[49]

§ 475. **Acts of parties may determine tract.**—C. owned north half of west half of southwest quarter of Section 30, containing forty-four acres and owned no other land in that section. The land was improved and nearly all fenced. C sold to W and put him in possession of the tract and described it as, "North part of west half of the southwest quarter of Section 30, containing forty-four acres more or less." Held the deed will be sufficient to convey the land.[50]

§ 476. **Plat governs as to description.**—Where a deed in describing property refers to a map or plat as marking the natural boundaries of such property, such plat should be considered as giving the true description, as much as though it was marked down on the deed.[51]

§ 477. **Inconsistent calls.**—The description in a deed was, "Commencing at a point on Jackson St., the same being one

[47]Hayden v. Brown 33 Ore. 221, 53 Pac. 490.

[48]Hayden v. Brown 33 Ore. 221, 53 Pac. 490.

[49]Gates v. Paul, 117 Wis. 170, 94 N. W. 55.

[50]Walker v. David 68 Ark. 544, 60 S. W. 418.

[51]Slauson v. Goodrich Transp. Co. 99 Wis. 21, 74 N. W. 574, 40 L. R. A. 825.

hundred feet from the corner of Jackson and Fifth Sts.; thence along said Jackson St. southward fifty feet; thence at right angles eastward one hundred and nineteen feet; thence northward fifty feet at right angles; thence one hundred and nineteen feet at right angles west toward place of beginning; the same being the south 1/3 of lots 6 and 7, in Block 16, of the Town of St. Paul proper." On the plat the frontage of the lots on Jackson Street appeared to be one hundred and fifty feet, but was in fact only one hundred forty-five and one-half feet, so that the south 1/3 of the lots would commence ninety-seven feet from the corner of Jackson and Fifth Sts. Held that the south 1/3 of the lots passed.[52] In other words, the court rejected that part of the description designated by courses and distances.

§ 478. **Description by lots rejected.**—A testator devised to his widow "the house where we now live, with the grounds connected therewith, being lots 1, 2, and 3, and 2/3 of lot 4 in block 225, situated at the junction of 8th and Helen Streets, in the City of Minneapolis." The lots mentioned were not situated at the junction of 8th and Helen Streets, but at the junction of 8th and Minnetonka Streets. These lots would take only a part of the house, which was situated on Lots 4 and 5, at the junction of 8th and Helen Streets. The testator did not own Lot 1, and had conveyed (subject to a condition of forfeiture as claimed the 1/3 of lot 2 next lot 1, but did own lots 3, 4 and 5, and the 2/3 of lot 2 next lot 1. Held that the description by the numbers of the lots was a mistake and must be rejected.[53]

§ 479. **Invalid plat referred to.**—Where, in a description in a deed, a plat is referred to, it may be used to identify the land referred to, though it does not conform to the statutes.[54] It

[52]Colter v. Mann, 18 Minn. 96, (Gil. 79).

[53]Butler v. 1st Presb. Church, 27 Minn. 355, 7 N. W. 363.

[54]Reed v. Lammel, 28 Minn. 306, 9 N. W. 858; Sanborn v. Mueller, 38 Minn. 27, 35 N. W. 666.

will be noted that the court permitted the use of the plat in order to identify the particular tract of land. In no other way could the land be identified. This is a use of extrinsic evidence to clear up a latent ambiguity.

§ 480. **Quantity supports call taken.**—A deed described the property conveyed as the "north 1/2 of the southwest quarter the southwest quarter of Section 6." Held that it should be construed to convey the north 1/2 of southwest quarter of southwest quarter of Section 6, especially as the call for quantity supported this construction.[55]

§ 481. **Construed most strongly against grantor.**—The description in the deed under which plaintiff claimed covered over two pages, describing the property by numbers of lots, blocks and government subdivision and was followed by the clause, "Also together with all other lands that may not have been heretofore described belonging to said South Park Co." Held that all of the property owned by plaintiff's grantor, at the time of such conveyance, would pass under clause quoted, though not included in the particular description.[56]

§ 482. **Parties presumed to make valid deed.**—Some effect will, if possible, be given to a deed, for it will not be presumed that the parties meant it to be a nullity.[57] So if the court can say by reading from the four corners of the deed what the legal effect is it will be given that effect.

§ 483. **Particular words control general.**—Words of particular description will control more general terms of description. Two deeds by the same grantor described the land intended to be conveyed as follows: 1. "A part of fractional section No. 19, being the half of the west half of the northwest quarter of Section No. 20, in township 7, range 14 west, containing forty acres." 2. "A certain tract of land in Posey County, lying on the Wabash river, with numbers as follows:

[55]Burnett v. McCluey 78 Mo. 676. Randell, 82 Iowa 89, 47 N. W. 905.
[56]Clifton Heighths Land Co. v. [57]Gano v. Aldrige, 27 Ind. 294.

the half of a fractional No. 29, (it's the west half of the fractional) containing five acres, in township 7 south, range 14 west." Held that as to the first conveyance the words, "a part of fractional No. 19," being rejected, as contradicting the more particular description which follows, it was good to pass an undivided half of the west half of the northwest quarter, etc. Held, also, that as to the second deed, the description was unintelligible and no effect could be given to it without evidence *aliunde*.[58]

§ 484. **Granting clause must prevail against grantor.**—M. being absolute owner of certain land, conveyed it by deed which declares in the granting clause that he, "releases, quit-claims, and conveys to (plaintiff) and its successors and assigns, all his claim, right, title and interest of every name and nature, legal or equitable in and to" said land. A subsequent clause declares that "the interest and title intended to be conveyed by this deed is only that acquired by M by virtue of a certain deed previously executed to him," and which (it is here assumed) conveyed to him only an undivided half of the land. Held that the two clauses are inconsistent; that the granting clause must prevail; and that M's whole interest in the land passed by the deed.[59] In the course of the opinion in the above case, the court suggests that in cases of the kind harsh rules of construction must be resorted to and they must operate most strongly against the grantor. The court also suggests the following rules, as determining its ruling, 1. A deed will always be construed most strongly against the grantor; 2. Of two contradictory clauses in a deed the first will prevail over the later, quoting a familiar old maxim, "The first deed and the last will."

§ 485. **Plat part of description in deed prevails.**—It is well settled that where a plat is referred to in a deed, as a part of

[58]Gano v. Aldridge, 27 Ind. 294.

[59]Green Bay & M. Canal Co. v. Hewitt., 55 Wis. 96, 12 N. W. 382.

the description or the land conveyed, such plat becomes an essential part of the description; and that courses and distances, quantities and measurements are controlled by natural or fixed land marks.[60]

§ 486. **"Along or upon a road."**—A conveyance of land generally bounded as "along or upon a road," will carry the fee to the center of the road.[61] In other words, the court will construe this instrument to carry title to the center of the road.

"Along the easterly line of street," in a deed, nothing appearing in the deed to modify, carries title only to the east side of the street.[62] Here the land was limited by the "easterly line of street."

"To said (named) highway; then by said highway," etc., carries line to the center of the highway, unless limited in other parts of the deed.[63]

As "beginning on the side of the new road * * and running (course given) by said road * * * * * to a stake," and "thence (course given)' to the place of beginning," carries the fee to the center of the road.[64]

"Beginning at an angle in the stone wall, etc." A conveyance of land, "beginning at an angle in the stone wall, on the easterly side of the aforesaid road"; thence running around the rear of the lot granted "to a stake and stones at the *aforesaid* road, thence northerly on the line of said road to the first *mentioned bound,"* excludes the road.[65]

In the above case the court laid particular stress on the fact that line came back "to a stake and stone at the aforesaid road," and then followed the line of the road to the point of

[60]Shufeldt v. Spaulding, 37 Wis. 662.

[61]Haberman v. Baker, 128 N. Y. 253, 20 N. E. 370, 13 L. R. A. 611.

[62]Severy v. Central Pac. Ry. Co., 51 Cal. 194.

[63]Oxton v. Groves, 68 Maine 371, 28 Am. Rep. 75.

[64]Low v. Tibbetts, 72 Maine 92, 39 Am. Rep. 303.

[65]Smith v. Slocomb, 75 Mass. (9 Gray) 36.

beginning, and, in effect, made the side of the road a monument, clearly showing an intention to exclude the road.

§ 487. **Construction of description under California statutes.**—Sec. 2077, of the Code of Civil Procedure, California, provides: "The following are the rules for construing the descriptive part of a conveyance of real property, where the construction is doubtful and there are no other sufficient circumstances to determine it:

a. Where there are certain definite and ascertained particulars in the description, the addition of others which are indefinite, unknown or false, does not frustrate the conveyance, but it is to be construed by the first mentioned particulars.

b. Where permanent or ascertained boundaries or monuments are inconsistent with the measurements, either of lines, angles, or surface, the boundaries or monuments are paramount.

c. Between different measurements which are inconsistent with each other, that of angles is paramount to that of surfaces, and that of lines paramount to both.

d. Where a road or stream of water not navigable, is the boundary, the rights of the grantor to the middle of the road or the thread of the stream are included in the conveyance, except where the road or thread of the stream is held under another title.

e. Where tide-water is the boundary the rights of the grantor to ordinary high-water mark are included in the conveyance. When a navigable lake, where there is no tide, is the boundary, the rights of the grantor to low-water mark are included in the conveyance.

f. Where the description refers to a map, and that reference is inconsistent with other particulars, it controls them, if it appears, that parties acted with reference to the map; other-

wise the map is subordinate to other definite and ascertained particulars.

§ 488. **Course and distance may be rejected as erroneous.**—The Minnesota court[66] has said: "In a deed of conveyance, the boundary lines of the granted premises designated by courses and distances, starting from a definite place of beginning, disclosed no errors or inconsistencies until the last line was reached, which was to run to the place of beginning, but the given course and distance would not bring it to the point, nor complete the inclosure of any land." Held "that the course and distance of the last line should be rejected as erroneous and effect be given to the more certain designation, thence to the place of beginning."

§ 489. **Which bank of slough meant?—Surrounding circumstances.**—A mill site was described in a course as "Commencing at a point 50 links east of the bank of the slough," etc. There were no objects which would satisfy the remainder of the description whether such starting point were taken to be 50 links east of the east bank or east of the west bank of the slough, but, under the circumstances, the latter construction is held to be the correct one.[67]

§ 490. **Lines actually run and marked on the ground control.**—The Nebraska court,[68] lays down the rule, "The intention of the proprietor of a town site, as to the streets and lots therein is indicated by the monuments he has caused to be placed at the corners of the lots, and by his conveyance of the streets to the public, and, in case of variance between the plat and survey the lines actually run and marked on the ground will control." And the Indiana court[69] says: "The lines actually run on the ground are conclusive and must control.

[66]Owings v. Freeman, 48 Minn. 483, 51 N. W. 476.

[67]Mack v. Bensley 63 Wis. 80, 23 N. W. 97.

[68]Holst v. Streitz, 16 Nebr. 249, 20 N. W. 307.

[69]Evansville v. Page, 23 Ind. 525.

Such lines can not be assailed where they can be established by original monuments. See other authorities.[70]

§ 491. **Call for one-half of creek or down center of creek.**— In the conveyance of land on a creek a call for "one-half of the creek," or for a line "down the center of the creek," with "its meanders," carries title to the middle of the main branch of the stream. Where such stream is divided by an island into approximately two equal branches, parol evidence will be

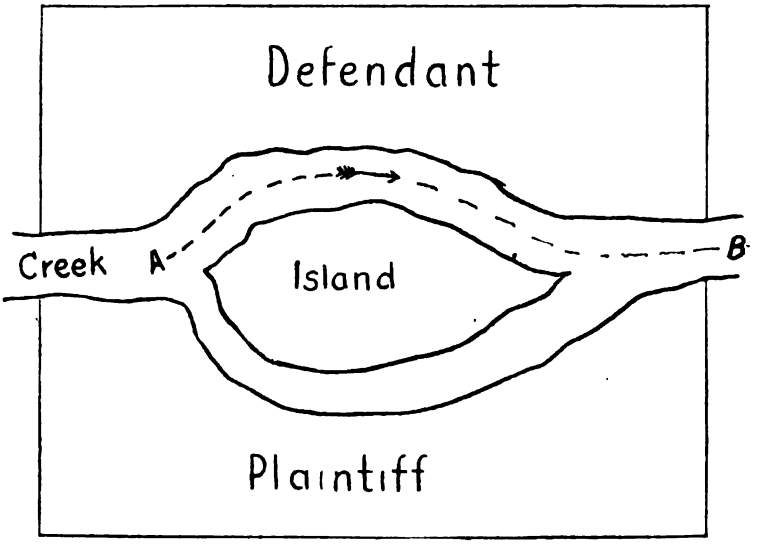


Fig 93

received to establish the main branch.[71] Fig. 93. In this case the court laid stress on the more abrupt turning of one of the branches nearly at right angles with the end of the island, as an aid in establishing the "main branch." The court will also

[70]Marsh v. Mitchell, 25 Wis. 706; Lampe v. Kennedy, 45 Wis. 23; Lampe v. Kennedy, 49 Wis. 601, 6 N. W. 311; Fleischfresser v. Schmidt 41 Wis. 223; McClintock v. Rogers, 11 Ill. 279; Bauer v. Gottmanhausen 65 Ill. 500; O'Farrel v. Harney, 51 Cal. 125; Diehl v. Zanger, 39 Mich. 601.

[71]Branham v. Bledsoe Creek Turnpike Co. 69 Tenn. (1 B. J. Lea) 704, 27 Am. Rep. 789.

receive evidence of the soil, timber and other natural features in determining this point.[72] Referring to Fig. 93, plaintiff

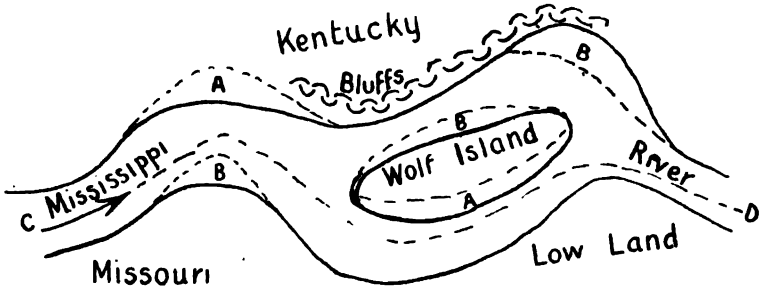


Fig. 94

owned land on right bank of creek and defendant owned land on left bank. Held that the dotted line, AB, was the boundary between them.

§ 492. **Evidence of natural features to establish boundary line.**—Wolf Island, in the Mississippi River, about twenty miles below the mouth of the Ohio, is part of the State of Kentucky, and not part of the State of Missouri. This fact settled by the testimony of witnesses as to which state exercised jurisdiction; as to where the middle of the main channel of the river had been, when the boundary between the states was fixed; by the character of the soil and trees of the island, as compared with the soil and trees of the respective states; and by the natural changes produced in the course of the current by the physics and by hydraulics of the river since the time mentioned as generally and specifically shown.[73] Referring to Fig. 94, the letter A represents the "made land" or the accretion to the shore: the letter B refers to the lands washed away by slow and imperceptible action of the water. It was held that the dotted line CD would be the boundary line between the states of Kentucky and Missouri. There is

[72]Missouri v. Kentucky, 11 Wall (U. S.) 401 20 L. ed. 118.

[73]Missouri v. Kentucky, 11 Wall. (U. S.) 401, 20 L. ed. 118.

another particle of evidence which the court considered and which was of great weight in a determination of the question. That related to the fact that the island was four feet above the Missouri shore and practically of the same height as the Kentucky shore.

§ 493. **East half of tract, containing fifty acres.**—Where the description in a deed transferring a portion of a tract of land having an irregular southern boundary was the "east half of the east half of the northwest quarter, and the east half of the east half of the southwest fractional quarter, all in section 36, containing fifty acres of land, *being the east half of the one hundred acres,*" etc., held, that the deed conveyed one-half of the quantity of the land, and not the land lying east of a line drawn through the middle of the tract. The court says: "It is a rule of law that a deed must be so construed, if possible, that no part shall be rejected. It is also a rule of construction that if the description in the deed be general, followed by one that is particular, the latter limits and defines the terms of the grant."[74] In this case, the court says: "A conveyance containing a description of the "east half" or "west half" of a parcel of land, which purported to be *according to the United States survey,* would be definite, and exclude the idea of two equal quantities, but would convey the idea and intention of fixing the dividing line in *accordance* with the act of Congress." Hence it would likely be held, that if a tract of land were bounded by metes and bounds and then ended up by using the expression "according to the United States government survey," that the distances must be proportioned according to the original survey. But if, "according to the United States government survey," or similar words were omitted from the description then the surveyor would be justified in believing the description to mean the actual measurement at the time

[74]Jones v. Pashby, 62 Mich. 614, 29 N. W. 374.

such description was written. This is important for the surveyor and the courts to remember. In a Michigan case,[75] the court had a similar proposition up for consideration and held that "east half" and "west half" of a certain tract meant the one-half of the quantity of land. Fig. 95. Referring to Fig. 95, it will be seen that the west line of the tract is the west line of Sec. 36; that the east line of the tract is the 1/16th section line. The entire tract was a government lot. Plaintiff owned a lease of "east half" and defendant of "west half" of Lot. 5. Question, Where is the proper boundary line? It is not specified to be "according to government survey." If the line be run as at CD, the line will run at a point equidistant between the east and west boundaries of the tract. If run as at AB, it would divide the tract into two equal areas. Held that AB was the division line.

§ 494. **A fractional part of government subdivision usually means that fractional part of the widths of that subdivision.**— While a fractional part of a government subdivision usually means that fractional part of the width thereof, it may mean that part of the area. The context of the description or surrounding circumstances may change this meaning. In a Michigan case,[76] the description under consideration by the court was: "The east half of the east half of the northwest quarter, and the east half of the east half of the southwest fractional quarter, all in Section 36 containing fifty acres of land, being the east half of one hundred acres." It was held that this description carried the east half of the entire tract in area and not the east half of the width of the entire tract. The last part of the description, "being the east half of one hundred acres," evidently was given great weight by the court in arriving at its decision. Referring to Fig. 96, the line 1-2-3

[75]Hartford Iron Mining Co. v. Cambria Mining Co. 80 Mich. 491, 45 N. W. 351.

[76]Jones v. Pashby, 62 Mich. 614, 29 N. W. 374.

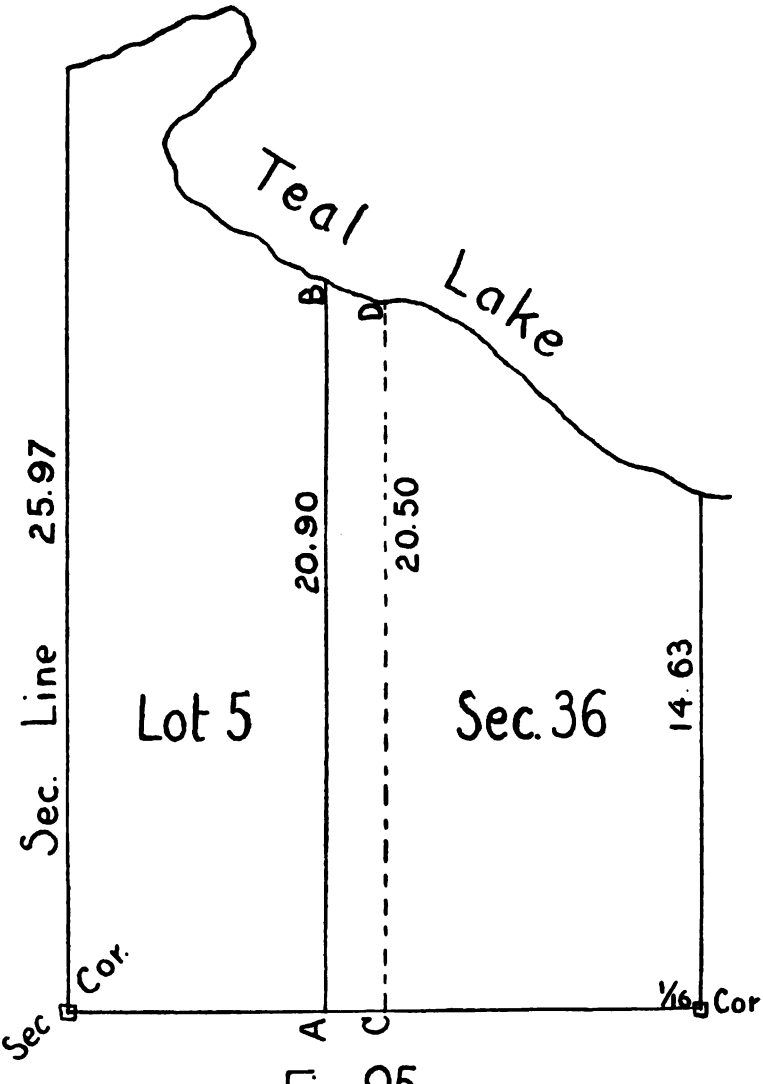


Fig. 95

would divide the tract into two equal widths but not in equal quantities. The line 4-5 would divide the tract into two equal

quantities but not into two equal widths. The lines 1-2 and 6-7 would divide the two quarter-quarters so that it would

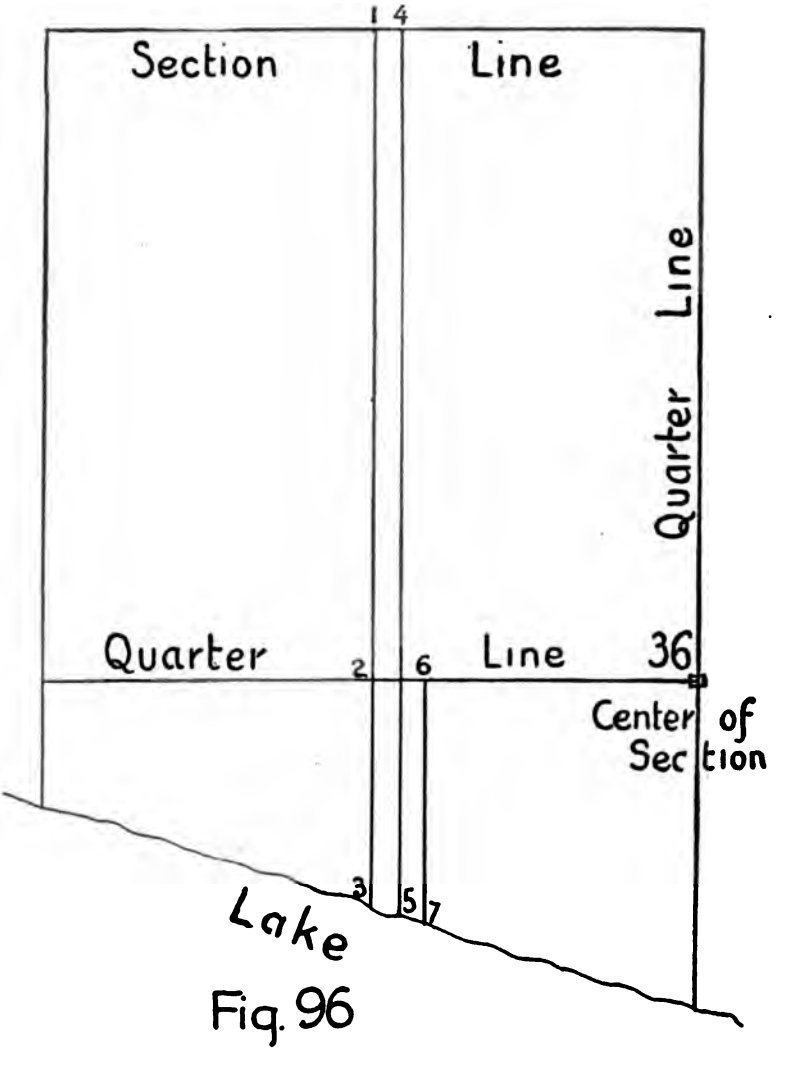


Fig. 96

give half of each quarter-quarter. The line 4-5 was held to be the division line between the parties. The court says, "A con-

veyance containing a description of the "East Half" or "West Half" of a parcel of land, which purported to be *according to the United States survey,* would be definite, and exclude the idea of two equal quantities, but would convey the idea and intention of fixing the dividing line in accordance with the act of Congress." But the court held that this is not such a grant; that it was a mere matter of construction of a description and that the context was conclusive as to the meaning.[77]

§ 495. **What distance to take.**—In 1846, at the time of the original survey, and also at the time of the writing of the description hereinafter set out, the distance across the north side of a certain tract of land shown on Fig. 97, was two thousand nine hundred and four feet. At that time a tract of land was sold described as follows: Commencing at the northwest corner of Section 3, of a certain township, thence running east along the town line to the first 1/16th corner; thence south along 1/16th line to the east and west quarter line; thence west on quarter line to the Mississippi river; thence up said river to the north line of said township; thence east along the township line to the place of beginning. A tract of twenty acres was later sold off of the north side of said described tract, "according to government survey." This tract was not surveyed until 1918. At the latter date the river had washed away some sixty-eight and seventy-six hundredths feet from the west end of the tract. In 1918, a surveyor was called upon to part off the twenty acres. How should it be done?

Answer. At the time the land was originally described the distance across the north side thereof was two thousand nine hundred and four feet. The river runs due north and south at the place indicated. The south line of the twenty acres should be run such distance south of the north line and parallel thereto as to part of the twenty acres, using the distance at

[77]Edinger v. Woodke, 127 Mich. 41, 86 N. W. 397. Ante § 493.

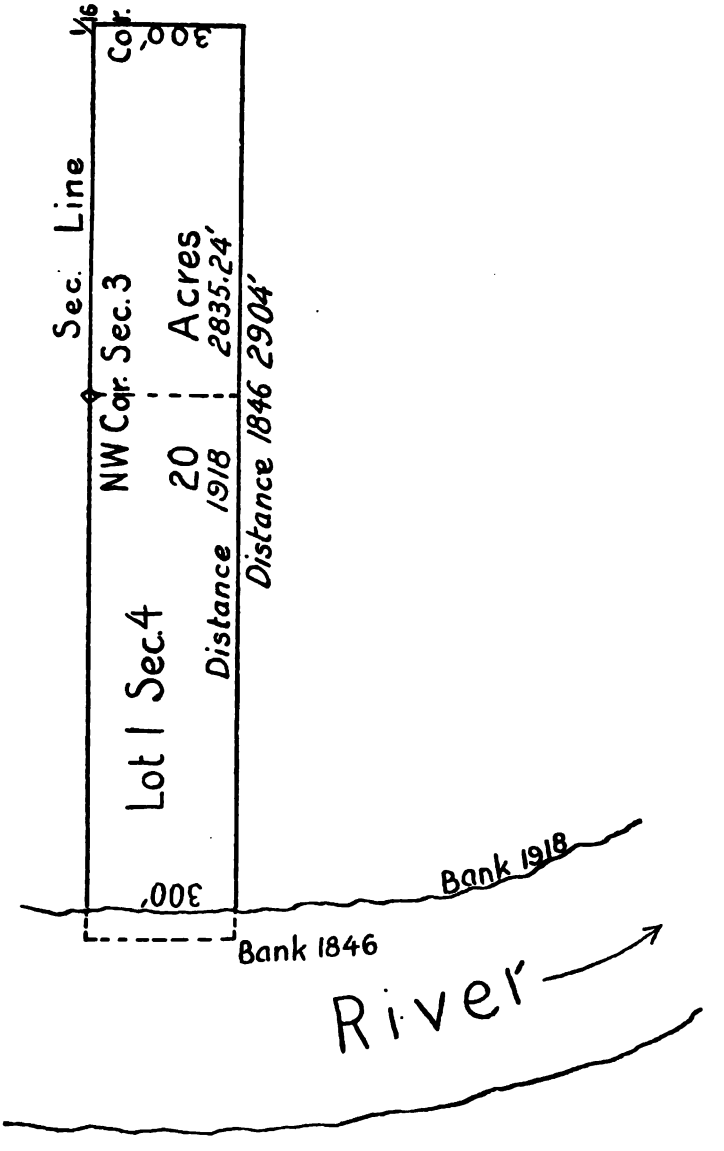

1/16 Cor.
300'
Sec. Line
NW Cor. Sec. 3
Acres 2835.24'
20
1918
Distance 1846 2904'
Distance
Lot 1 Sec. 4
300'
Bank 1918
Bank 1846
River

Fig. 97

the time of the formation of the description. If the description had been made in 1918, and nothing said therein about it being "according to government survey," the surveyor would take the present distance across the north line as a basis for computation of the width, i. e., two thousand eight hundred and thirty five and twenty-four hundredths feet. Such width according to present distance would be three hundred and seven and twenty-six hundredths feet. According to the distance in 1846, it would be three hundred feet. And generally if a tract of land is described by metes and bounds "according to government survey" the distances should be apportioned "according to government survey." If described by metes and bounds, with no designation, "according to government survey," the surveyor should take the actual distance as of or to be determined at the time the description was made. That is the surveyor should consider conditions existing at that time. The parties will be deemed to have made such description with reference to the conditions existing at the time of the making thereof. Hence, when a surveyor has such a question propounded to him, he should read over and study the description carefully in all its bearings and then apply the same according to conditions existing at the time the description was formed. The words "according to government survey," when they appear in a description, play an important part therein and should not be disregarded. The surveyor will seek to find out the intention of the parties and the rule herein laid down will be an aid. The distances as of 1846 are designated "government distance" for the reason the original survey was made just about the time the description was written. Such distances are taken to be the actual distance at that time and prior to the time when the river washed away a portion of the bank. Such "government distance" is taken for the reason it was the only evidence obtainable in 1918, of the actual distance in 1846.

§ 496. **Northwest corner of lot means corner of lot—Not corner of intersection of center of street.**—Plaintiff claimed title to the following: Commencing at a point fifty feet east of the N. W. corner of lot 1; thence east on the north line of such lot to a point 27 1/2 feet west of the northeast corner of lot 1; thence south ninety feet; thence east to the east line of lot 2; thence south to the southeast corner of lot 2; thence west on the south line of lot 2 to the east line of O's land; thence north forty-five feet; thence west six feet; thence north to the place of beginning. The defendant claimed the following: commencing at the northwest corner of lot 1; thence south seventy-five feet along the west line of lots 1 and 2; thence fifty feet east, parallel to the north line of lot 2, to a point seventy-five feet south of the north line of lot 1; thence north, parallel to the west line of lots 1 and 2, seventy-five feet to a point on the north line of lot 1; thence west along the north line of lot 1, fifty feet, to the place of beginning. The court held that the "northwest corner of lot 1," referred to in both deeds, should be treated as located at the point of intersection of the south and east lines of two streets, at the northwest corner of lot 1, and not at the point of intersection of the center lines of such streets. So held notwithstanding the fact that the court concedes that the defendant owns, subject to the public easement, the land covered by the streets to the center line thereof.[78] And the Supreme Court of Indiana has held that "the lot," must be understood to mean the land independently of the street.[79] To illustrate the claims by the respective parties, see Fig. 98. The defendant claimed the proper line between himself and the plaintiff should be A-B. The plaintiff claimed the true line to be B-C. Held A-B was the true boundary line.

§ 497. **To a tree on bank of river; thence down river, etc.**—A survey called for a tree "on bank of river Monongahela, and

[78]Wegge v. Madler, 129 Wis. 412, 109 N. W. 223, 116 Am. St. 953.

[79]Montgomery v. Hines, 134 Ind. 221, 33 N. E. 1100.

thence down said river by the several courses and distances," etc. to beginning. The distance from the tree mentioned to the water was 14 perches, and the diagram showed the marks as being at some distance from the margin of the river. Held there being no evidence of a contrary intention, the river was the boundary.[80]

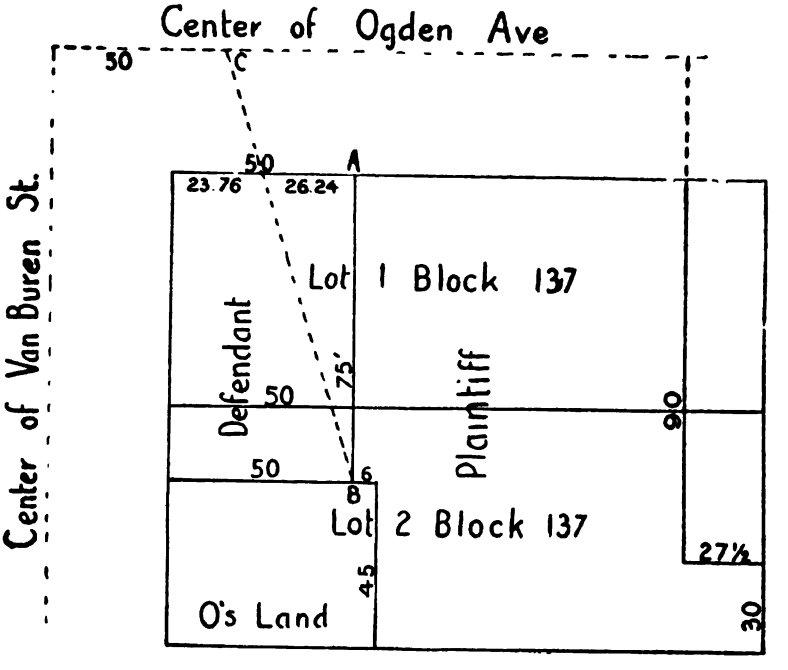


Fig. 98

§ 498. **Bounded by a navigable river.**—A survey returned as "bounded by a navigable river" vests in the owner the right to the soil to ordinary low-water mark of the stream, subject to the public right of passage, etc., between ordinary high and low-water mark.[81] Very likely this right to passage would be

[80]Grant v. White, 63 Pa. 271.
[81]Wood v. Appal, 63 Pa. 210.

confined to the use of the river at high-water mark and not when the water has settled to low-water mark.

§ 499. **Conflict of descriptions in deeds from same person.**—It frequently happens that the same person has given two deeds, intended as a description of the same tract of land. Unless the second deed was given for the express purpose of correcting an erroneous description and so shows on its face the rule is: "In the event of a conflict of the descriptions in deeds from the same person, intended as the same tract of land, the description in the deed that was first executed controls and the boundaries must be run accordingly."[82]

§ 500. **Tract bounded by river.**—In case a line is described as running to a river and "thence up said river" or "down said river," the line is to follow the turnings of the river and, if nonnavigable, must extend to the thread of the stream.[83]

Where land is bounded by a river or road the boundary line is in the center of the river or road, unless the description clearly limits the line to the exterior border thereof.[84] A deed of land bounded by a mill pond which is a mere enlargement of the river passing through it passes title to the thread of the stream.[85]

§ 501. **Can claim actual measurement only.**—A tract of land is described as follows: Commencing on the section line, 4.92 chains north of the southwest corner of Section 27-15-11 east; thence north along said section line 7.25 chains; thence east 1.37 1/2 chains; thence south 7.25 chains; thence west 1.37 1/2 chains to the place of beginning. There is a nav-

[82]Flynn v. Sparks, 10 Ky. L. 960, 11 S. W. 206.

[83]Brown v. Huger, 21 How. (U. S.) 305, 16 L. ed. 125.

[84]Banks v. Ogden, 2 Wall (U. S.) 57, 17 L. ed. 818; White's Bank v. Nichols, 64 N. Y. 71; Snoddy v. Bolen 122 Mo. 479, 24 S. W. 142, 24 L. R. A. 507.

[85]Roberts v. Decker 120 Wis. 102, 97 N. W. 519; Lawson v. Mowry, 52 Wis. 219, 9 N. W. 280; Fox River Flour & Paper Co. v. Kelley, 70 Wis. 287, 35 N. W. 744.

igable lake lying north of the tract but no mention of the lake is made in the description, and, at the ordinary stage of water, does not touch the lake. In fact, the nearest approach of the lake, at low-water mark, to the tract, is 1.70 chains. At high-water mark, the lake just cuts across the northwest corner of the tract a few feet. The question is : Can the owner of the tract claim riparian rights?

This problem is mostly a matter of construction. The words of the description are plain and unambiguous and indicate that the owner of the property can claim only the distance set forth in his description. If the wording of the description was, in part, "north 7.25 chains to lake," it would indicate that the parties fixed the lake as the boundary, and such owner would, in that event, be entitled to follow the shore of the lake northerly as it receded or dried up. The annexed figure will give a general idea of the situation. Fig. 99.[86]

§ 502. **Tract bounded on a private way.**—The courts of the several states do not agree on the rule to be followed in such cases. The weight of authority is clearly to the effect that, unless the description clearly indicates a different construction, the court will hold the grant extends to the center of the private way. The Connecticut court takes the opposite view and holds that a tract of land designated by metes and bounds, describing one side as bounded "on Seery Place," which was simply a private way, the grantee took to the side of the way only.[87] The Supreme Court of Massachusetts holds that the grant would carry to the center of the private way. In fact, that court makes no difference in construction of descriptions bounding on a private or public way.[88] The

[86]Ante § 283.

[87]Seery v. City of Waterbury, 82 Conn. 567, 18 Ann. Cas. 73.

[88]Fisher v. Smith, 9 Gray (Mass.) 441; McKenzie v. Gleason, 184 Mass. 452, 69 N. E. 1076, 100 Am. St. 566.

courts of Maine agree with the Connecticut court.[89] The Connecticut court, in the case cited above, says: "There is

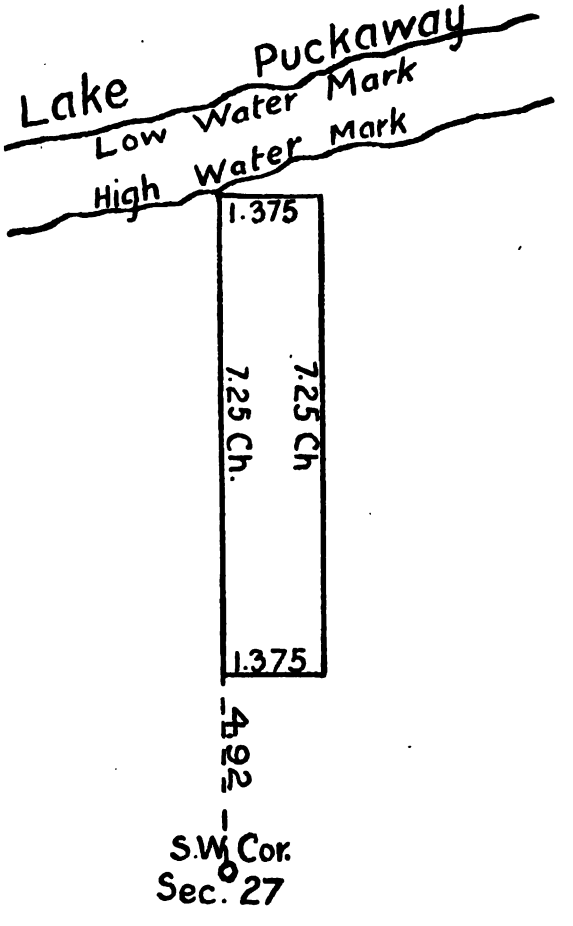


Fig. 99

no statute or judicial precedent which governs, nor any general custom of which we can take judicial notice. The ques-

[89] Ames v. Hilton, 70 Maine 36.

tion is one also not settled by the common law. It is therefore our duty to answer it by the choice of the rule which, in our judgment, is best calculated to do justice in cases of this character. This we have done. We adopt that rule which does not raise, in case of a boundary on a private way, the presumption which obtains in case of one on a highway." In our judgment, it is largely a question of intention of the parties. In finding that intention, of course, the court would consider all of the surrounding circumstances.

§ 503. **Private grant interpreted favorable to grantee.**—A private grant is to be interpreted favorable to the grantee and where the garntee in a private conveyance is the owner of the bed of a tidal stream, designated as a boundary of the land granted, the conveyance will be held to extend to the thread of the stream.[90] And where a creek is made a boundary of the land conveyed, and the calls of conveyance ascend the creek, the line ascending the creek follows the thread of the stream, and the courses and distances must yield to the actual line of the creek.[91] In Illinois, grants of land to a stream carry title to the thread of the stream unless restricted by the wording of the grant, and it is said,[92] that "Grants of land bounded on streams, carry the exclusive title of the grantee to the center of the stream, subject to the rights of navigation in the public." But in case of a parcel bounded by a lake or pond, the grantee takes to low-water mark.[93] Where the description in a transfer is "according to a certain plan or recorded plat," that plat or plan is a material part of the description and unless there be fraud or mistake, such plan or plat will control.[94]

[90]Freeman v. Bellegarde, 108 Cal. 179, 41 Pac. 289, 49 Am. St. 76.

[91]Freeman v. Bellegarde, 108 Cal. 179, 41 Pac. 289, 49 Am. St. 76.

[92]Trustees of Schools v. Schroll, 120 Ill. 509, 12 N. E. 243, 60 Am. Rep. 575.

[93]Trustees of Schools v. Schroll, 120 Ill. 509, 12 N. E. 243, 60 Am. Rep. 575.

[94]McCormick v. Huse, 78 Ill. 363.

§ 504. **Meaning of words in deed—"To the pond, etc."**—A deed described the boundary of certain land as "running to the pond, to a stake and stones." Held, that this restricted the grantee to the "stake and stones," if they, or their original location could be ascertained; if not, then the grant extended "to the pond."[95] A grant of land extending to a monument standing on a bank or margin of a river, goes to the thread of the river, unless the terms of the grant denote an intention to stop at the margin.[96]

If, in a deed, the boundary line on one side of the land conveyed as running from a given monument easterly to a creek parallel with the south line of another tract of land, and such southern line of the other tract of land is not a straight line, but meanders, then the boundary line described in the deed will run parallel with the other line in its meanderings, and not straight, and parallel with its general course. The word, "easterly," when used alone means due east but it may mean something else as shown by the context, and will then mean what the qualifying words make it mean.[97]

§ 505. **When the construction of a deed is doubtful.**—When the construction of a deed is doubtful great weight is to be given to the construction put upon it by the parties, especially in doubtful questions of boundaries, which must be presumed to be within their knowledge. When both parties, therefore, agree as to the boundaries and lines of a lot, they must be taken to be the true boundaries and lines unless the contrary can be clearly shown.[98]

When a wall dividing two city lots and standing four inches on each lot has existed for sixty years and a part of it has been treated as a party wall by the owners of both lots, it will be presumed, in the absence of evidence to the contrary, to

[95]Robinson v. White, 42 Maine 209.

[96]Robinson v. White, 42 Maine, 209, 66 Am. Dec. 274.

[97]Fratt v. Woodward, 32 Cal. 219, 91 Am. Dec. 573.

[98]Stone v. Clark, 1 Metc. (Mass.) 378, 35 Am. Dec. 370.

have become a party wall throughout its length and the owner of either lot may strengthen and repair the foundation of the wall and build the wall higher than the adjoining house.[99] It is but natural that the meaning given to an instrument by the interested parties should have great weight with the court in cases of doubt. It is a practical construction placed on the language used.

§ 506. **Boundary between riparian owners a fresh water stream.**—When the boundary between riparian owners is a fresh water stream, the middle thereof is the lineal partition between them, unless by the express terms of the grant to the first possessor this conclusion of law is excluded.[1] Still as we have seen, a slight variation in the language used would change the meaning.[2] If the boundary was one running to the "side of a stream," it would, unless modified by the context, be limited to the side.[3]

§ 507. **Monuments may yield to courses and distances.**—It is laid down[4] that "Courses and distances which enclose the particular land may prevail over monuments, where the *latter would defeat the grant.*" This is an extreme case and indicates that the court disregarded the general rule only because an adherence thereto would defeat the grant.[5] In the case of White v. Luning, the monument referred to in the description in the deed or patent was given as being a "fence," i. e., the call in one course, being "to a fence." Evidently in this case there was an error in such call, and the two calls were inconsistent. In that event, the court should take the more reasonable as indicated under all of the circumstances.

[99]Fleming v. Cohen, 186 Mass. 323, 71 N. E. 563, 104 Am. St. 572.

[1]Muller v. Landa, 31 Tex. 265, 98 Am. Dec. 529.

[2]Ante § 486.

[3]Ante § 486.

[4]White v. Luning, 93 U. S. 514, 23 L. ed. 938.

[5]Whitney v. Detroit Lumber Company, 78 Wis. 250, 47 N. W. 425; Moran v. Lesotte, 54 Mich. 90, 19 N. W. 757.

§ 508. **Low-water mark—Metes and bounds—Monuments—Courses.**—Where the boundary in a description is "to low water-mark of the Mississippi River, thence down to the extended line between surveys," the word, "down" means down the river and the land extends to the center of the river.[6] Metes and bounds in a description of premises control distances and areas, if there be inconsistency between them.[7] If calls for descriptions do not harmonize in running a certain direction and all known calls of survey are met by running in opposite direction this may be done.[8] Natural objects called for in a description, such as mountains, lakes, rivers, creeks, rocks, etc., control artificial objects, such as marked lines, marked trees, stakes and the like, and artificial objects control courses and distances, and quantity is controlled by courses and distances.[9]

§ 509. **Bayou may be navigable river.**—A bayou in the Saginaw river, from six to nine feet deep, the upper end of which is closed, and which has been and can be used for purposes of navigation, is a navigable river, though it rises and falls with the Saginaw river, and has no current.[10] In this case, plaintiffs claimed the right, as riparian owners, to use the bayou as a navigable stream. Defendant claimed that plaintiff had no such right. The plaintiffs received conveyance from the owner of the platted property. The property described by lot in a plat in which the dedication portion says: "The portion with shaded boundaries on the map has been

[6]St. Louis v. Rutz, 138 U. S. 226, 34 L. ed. 941, 11 Sup. Ct. 337.

[7]Morrow v. Whitney, 95 U. S. 551, 24 L. ed. 456; Horne v. Smith, 159 U. S. 43, 40 L. ed. 69, 15 Sup. Ct. 988.

[8]Simmons Creek Coal Co. v. Doran, 142 U. S. 417, 35 L. ed. 1063, 12 Sup. Ct. 239; Ayers v. Watson, 137 U. S. 584, 34 L. ed. 803, 11 Sup. Ct. 201.

[9]Ayers v. Watson, 113 U. S. 594, 28 L. ed. 1093, 5 Sup. Ct. 641; Caspar v. Jamison, 120 Ind. 63, 21 N. E. 743; Miles v. Sherwood, 84 Tex. 488, 19 S. W. 853.

[10]Turner v. Holland, 65 Mich. 453, 33 N. W. 283.

sold by the proprietors to the parties whose names are marked on the lots. The lots sold and bounded on the water are sold only as far as the shaded portion extends." Plaintiff's lots were not among these. Held, that this clause did not imply any reservation of the proprietor to himself of the water-rights of the lots not so sold or shaded. Plaintiff's lots were conveyed only by number and according to the plat. On the plat they appear as bounded by the bayou. The map shows the depth of the lots, in feet and hundredths, to the bank of the bayou. Held that the rule that natural boundaries govern courses and distances applies and plaintiffs took, with their lots, the riparian rights incident to the ownership of the bank.[11]

The court in the above case cites Watson v. Peters[12] where Justice Cooley lays down the rule that, "The owner of city lots bounded by navigable streams, like the owner of any other lands thus bounded, may limit his conveyance within specific limits, if he shall so choose, but, when he conveys with the water as a boundary, it will never be presumed that he reserves to himself proprietary rights in front of the land conveyed, which he may grant to others for private occupation, or so occupy himself as to cut off his grantee from the privileges and conveyances which appertain to the shore of navigable water." Hence it is the invariable rule that where the owner of lots fronting on water conveys them without any reservation, he transfers all riparian rights to the water front to his grantee unless the recorded plat shows a reservation in himself at the time of the dedication of the plat. Should there be a reservation in the grant the court will have to determine the meaning thereof.

[11]Turner v. Holland, 65 Mich. 453, 33 N. W. 283.

[12]Watson v. Peters, 26 Mich. 508.

CHAPTER XIX

SOME USUAL AND UNUSUAL QUESTIONS ANSWERED

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510. Generally.
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512. Section six in "fractional township."
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Sec.

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541. To establish north quarter corner of section six in a township bordering on correction line north.
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543. To re-establish the east quarter corner of section five.
544. Observations on different methods of establishing quarter-quarter corners north of center in fractional sections.

§ 510. **Generally.**—The surveyor is constantly meeting with perplexing problems. Frequently these problems arise in the field. While he may decide in a majority of cases correctly, yet he often feels that he would be a little more confident of his position if he could have some authority near at hand to confirm his conclusions. This chapter will especially treat of such questions and will deal with the more important problems which may arise in actual practice. No attempt will be made to cover the entire field. But it is hoped the surveyor will be able to use the suggestions made in working out, in his own way, various other questions which may arise.

Of course, the surveyor will carefully examine all of the original field-notes pertaining to the particular section under consideration, and ascertain whether or not particular instructions were given by the surveyor-general to his deputy who made the original survey. If such instructions, out of the ordinary were given, they may play an important part in the work of the local surveyor and he should be guided, in a measure, thereby.

§ 511. **East and west quarter line of section six.**—All of the corners of section six of a given township, except the east quarter corner, are known. That corner is in a meandered lake and was never located. This section is not a part of a

so-called "fractional township." How is the surveyor to run the east and west quarter line?

Answer. As the west quarter corner was originally established at exactly 40 chains from the southwest corner of the

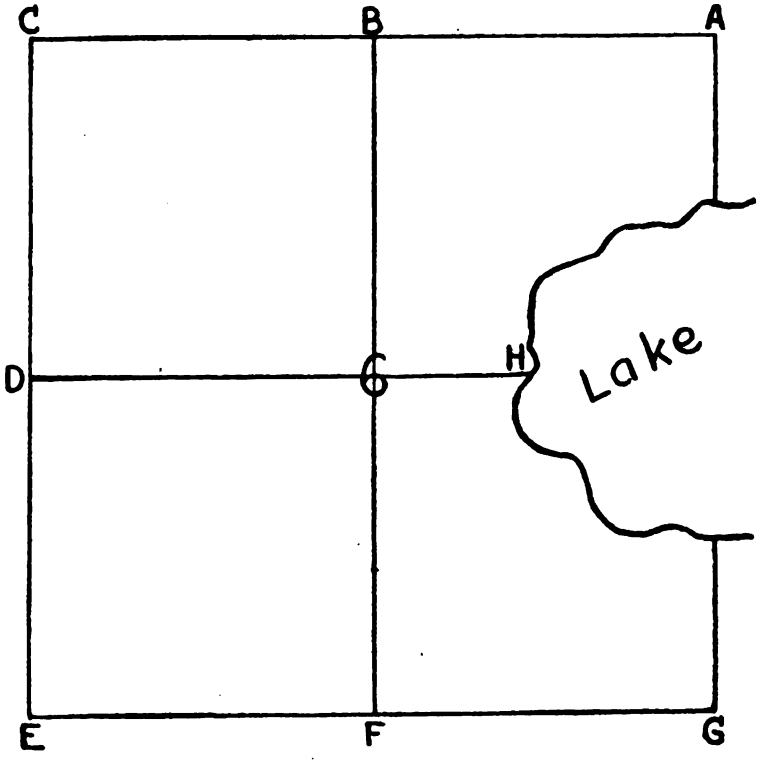


Fig. 100

section, and furthermore, had the east quarter corner been established, it would have been placed at exactly 40 chains, original measurement, north of the southeast corner of the section, the surveyor should run the east and west quarter line parallel to the south boundary of the section, starting from the west quarter corner. Similarly, if the east quarter corner

is known and the west quarter corner was never located owing to a body of water, or otherwise, the surveyor will start at the east quarter corner and run a line parallel to the south boundary until it intersects the lake or other boundary. The north and south quarter line under like circumstances should be run parallel to the east side of the section.[1]

Fig. 100. Corners A, B, C, D, E, F, and G are known.

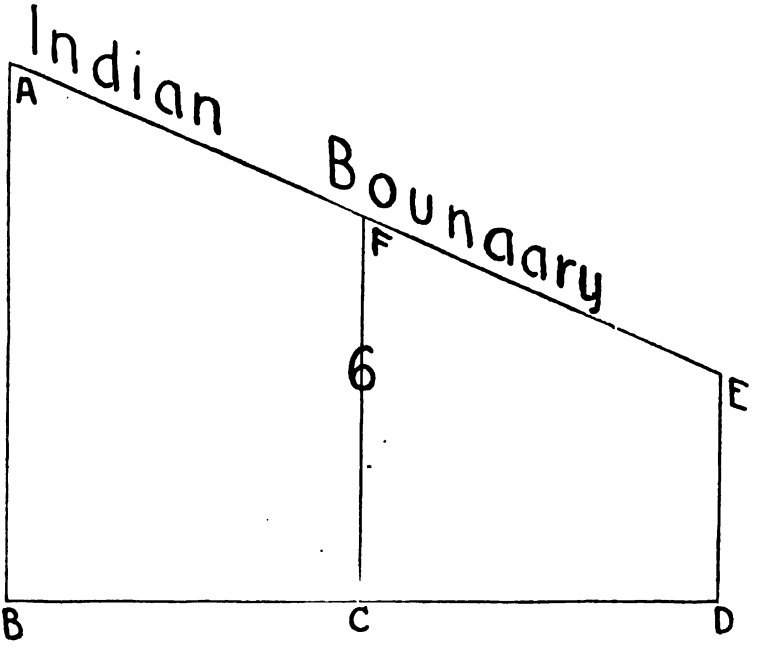


Fig. 101

East quarter corner in lake and never established. Run DH parallel to EG.[2]

§ 512. **Section six in "fractional township."**—In the event section six is a part of a "fractional township" and, assuming

[1]Barnes' Fed. Code, §§ 4138, 4139. [2]R. L. C. (1909) 78-79; ante § 367.

that the entire northerly boundary is along a "water course, Indian boundary line, or other external boundary of such fractional township," Section 2936 United States statutes would apply and, in running the north and south quarter line of the section, the surveyor should run a true north and south line from the south quarter corner to the said "water course, or, etc." Fig. 101. The south quarter corner C is known. Run CF due north from C until it intersects the "Indian boundary line." In practice, this is attained by running the line a mean between AB and DE. The same rule will apply if the "Indian boundary line" ran along the westerly side of the section.[8]

§ 513. **Interior section made fractional by lake, to run quarter line.**—Where an interior section is made fractional by a meandered lake, or other body of water, and not in a "fractional township," and no quarter corner was ever established, say on the west side of the section, the surveyor will begin at the east quarter corner and run a line westerly on a variation which shall be a mean between the north and south boundaries of the section. Thus, if the north boundary is a true east and west line and the south boundary runs on a variation of N 89 degrees and 30 minutes E, the east and west quarter line should run on a variation of N. 89 degrees and 45 minutes E. Fig. 102. Corners A, B, C, D, and E are known. Run CF a mean between AB and DE. Some writers have construed Section 2396 (subdiv. 2) to apply to such a case and have laid down the rule that the quarter line should be run due east and west or north and south, as the case may be. But they arrive at a true north and south or east and west line by making the line a mean as herein laid down. But it seems that subdivision 2 of above section applies strictly to "fractional townships," and not to fractional sections in an ordinary township. However,

[8]R. L. C. 78-79; ante § 367.

the United States land office approves of running such lines on a mean variation.[4]

§ 514. **Fractional section five, no quarter corners established.**—In this illustration, no government quarter corners

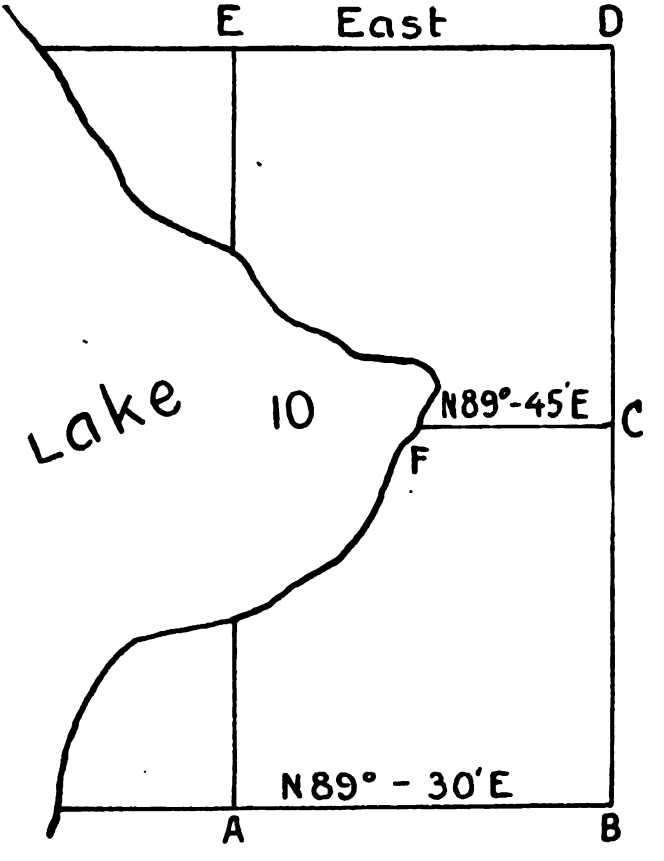


Fig. 102

were established. The government measurements of the section lines will be found on the plan, Fig. 103. By subse-

[4]R. L. C. 78-79; ante. § 367.

quent measurement the following result was had. North side 79.50 chs., West 79.80 chs., South 49.50 chs., East 76.60 chs. Where shall the quarter corners be planted?

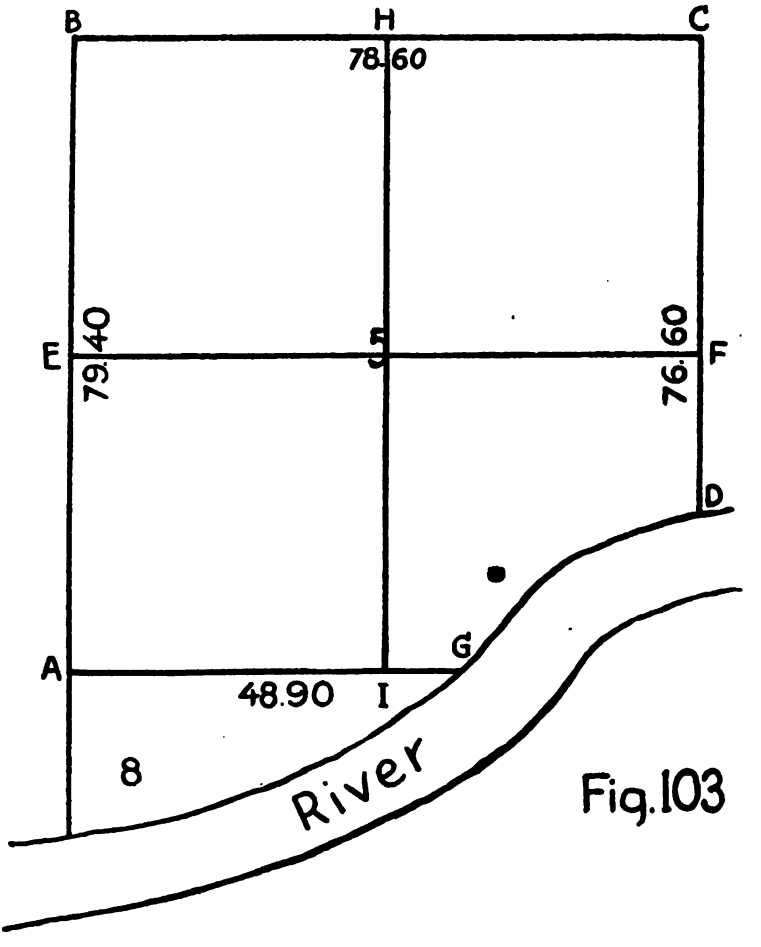


Fig. 103

Answer. The quarter corner on the north side should be placed on a direct line and midway between the section corners. That on the west side should be placed at 40 chains, government measure, north of the southwest corner of the

section and in a direct line joining the section corners. From the quarter corner on the west, as established, run a line parallel to the south boundary of the section easterly until it intersects the east side of the section. This will be the east quarter corner. From the north quarter corner, as established, run a

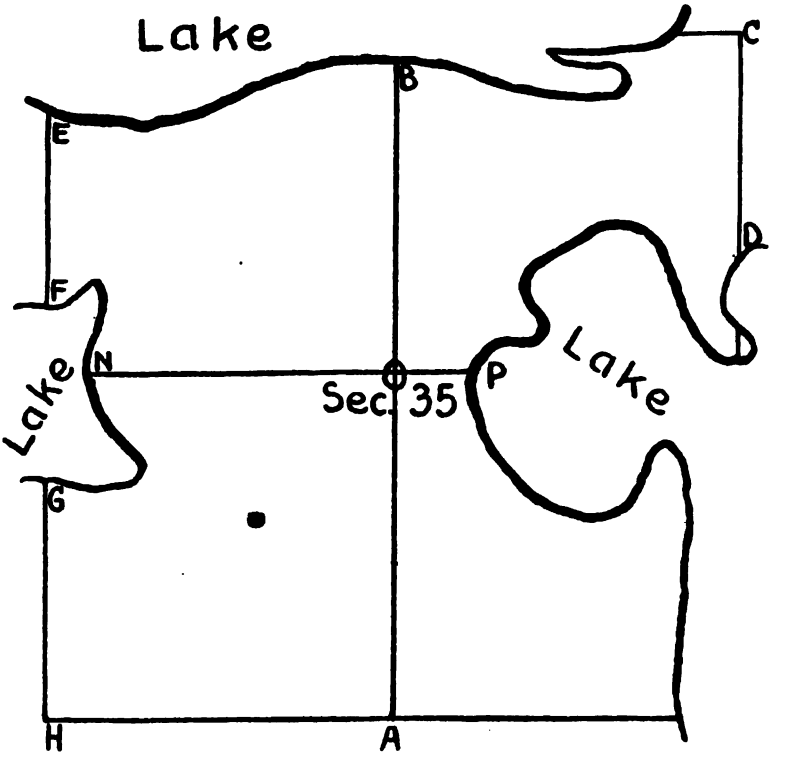


Fig. 104-A

line southerly on a bearing, which is a mean between the east and west sides of the section, and at the point of intersection with the south boundary of the section plant the quarter corner. Note the difference in running the two quarter lines. By computation, the later measurement from S. W. Cor. of

Sec. to W. 1/4 Cor. will be 40.201 chs. 79.40 : 79.80 :: 40 : X. X will equal 40.201 chs. EF is parallel to AG. HI is a mean between AB and CD.[5]

§ 515. **Two section corners and one quarter corner only established.**—It frequently happens that, owing to lakes or other conditions, two or more of the section corners and two or more of the quarter corners were never established by the government surveyors. How is the surveyor to subdivide such a section? Fig. 104a presents such a proposition. Assume that corners H and C may be found; also quarter corner A and meander corners D, E, and G are to be found. Run the two quarter lines. The surveyor will first measure lines CD, AH, GH and thus test his chains or tape with reference to government survey. He will then take the bearings of CD and HG. He will run the line AB on a bearing which is a mean between the lines CD and HG. At O he will plant the center of the section on such line 40 chains government measure from A. What is here meant by government measure is that he will regard the length of his chain or tape as ascertained by the test of the lines CD and HG, and adjust it accordingly. He will then run the quarter line NOP from O, parallel to AH. Of course, the rule requires line AB be run due north from A, but a mean between lines CD and HG, parts of the original section lines on east and west sides respectively, will give the proper line.[6]

§ 516. **Fractional section two— East part in lake—Run quarter lines.**—The south and east one-fourth corners and also the center of section two of a certain town were never established, being in a lake. The north and west quarter corners are known. Also the northwest and southwest corners can be found. How should the quarter lines be run?

Answer. From the west quarter corner run the east and

[5]R. L. C. 78-79; ante § 36.

[6]Beardsley v. Crane, 52 Minn. 537, 54 N. W. 740; ante §§ 367-9.

west quarter line parallel to the south boundary of the section. From the north quarter corner run the north and south quarter line parallel to the west boundary of the section. Should this section be in a "fractional township," and the lake in question be a part of the east boundary of such township, then the quar-

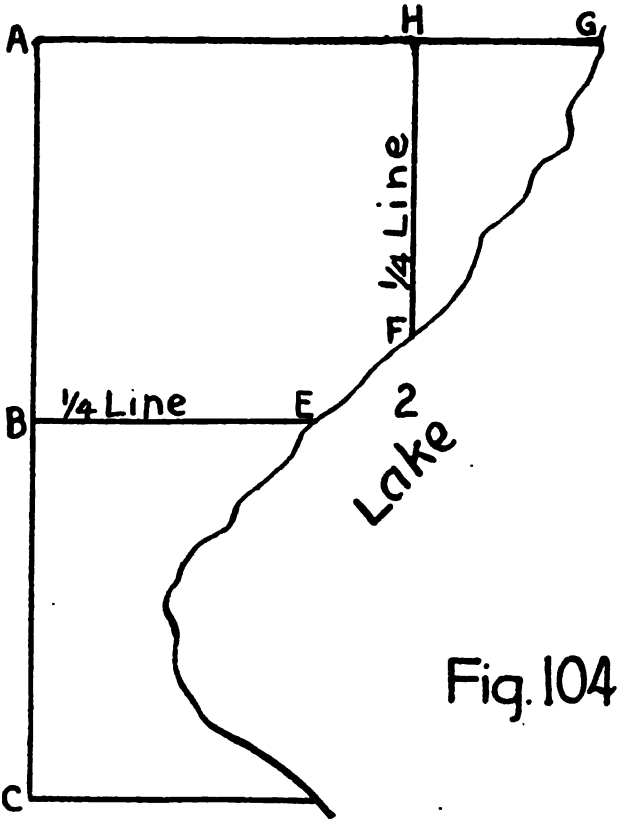


Fig. 104

ter lines above referred to should be run according to Section 2396 of the United States statutes, i. e. The north and south quarter line should be run due south from the north quarter corner until it intersects the lake, and the east and west quarter line should run due east from the west quarter corner until

it intersects the lake. As to first proposition see Fig. 104. Run BE parallel to CD. Run HF parallel to AC.[7]

§ 517. **"More or less according to the United States survey."**—A piece of land is sold and described in the deed as, "Commencing at the south quarter post of section 26, of a certain town and range, running thence east along the section line 120 rods; thence north 160 rods; thence west 120 rods; thence south 160 rods to the place of beginning; containing 120 acres, more or less according to the United States survey." The closing words of the description clearly indicate that the measurements are to be made "according to government survey." Hence the distances should be proportional according to that survey. Suppose the present measurement for above section gives the distance between the southeast corner of the section and the south quarter corner as 40.20 chains. By computation we find the indicated tract would measure 30.15 chains along the south line of section. In order to find north side of SE 1/4 government measure, take the mean length (government measure) of the north line of NE 1/4, 40 chs. and the south line of SE 1/4, 40 chains, which will give such distance. If the north line of NE 1/4 is 40.00 chains, and the south line of SE 1/4 is 40.00 chains, the mean would be 40.00 chains. This would be the length of the north line of SE 1/4. The present measure of the north side of SE 1/4 is 40.25 chains. By computation, it will be found that the length of the north side of the tract in question would be 30.1875 chains. Hence the NE corner of the tract would be 30.1875 chains east of the center of the section and the SE corner would be 30.15 chains east of the south quarter corner. The length of the tract north and south being one hundred and sixty rods "according to government measure" it must necessarily be bounded on the north by the east and west quarter line and on the south by the south boundary of the section.

[7]R. L. C. 78-79; ante §§ 367-9.

See Fig. 105. Corners can all be found. The line AB should be the eastern boundary of the tract described in the deed. Where the description is by metes and bounds and there is nothing in the description to show that measurement is to be made according to "government survey," it is quite likely the

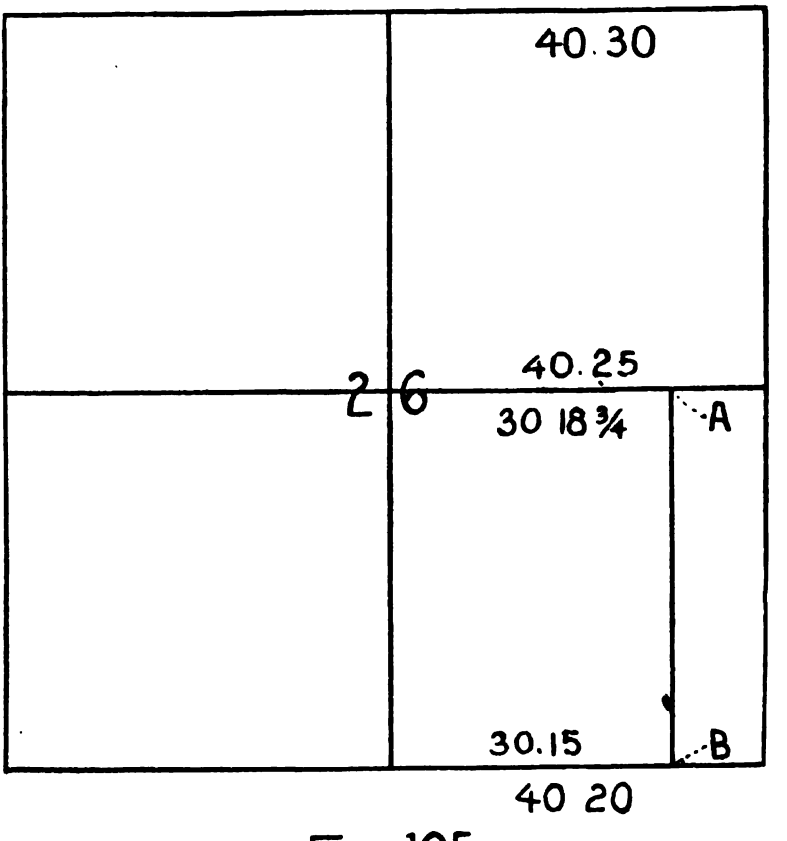


Fig. 105

courts would construe the description to mean the exact distance unless in applying the description to the tract of land a different meaning was evident.

§ 518. **The north eighty acres of N. W. ¼ of section five.**— A owned the N. W. 1/4 of section five in a certain township. The section was fractional and the quarter in question overruns. He sold the "north 80 acres" * * * "according to government survey" to B. How should it be surveyed?

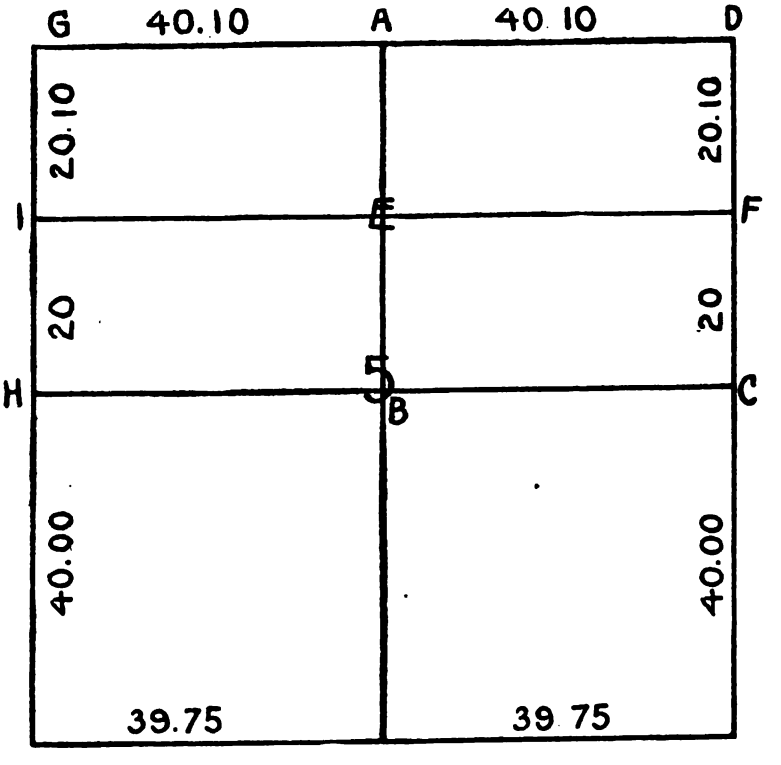


Fig. 106

Answer. The reading of the description indicates that the parties intended the transfer to cover a proportional amount of all of the land in that quarter. Hence, the measurements should be proportional "according to government survey." And generally where there is nothing in a description to indi-

cate a different intention, similar descriptions are to be construed as carrying the particular part of a subdivision of the government survey. The description and surrounding circumstances should be carefully studied.

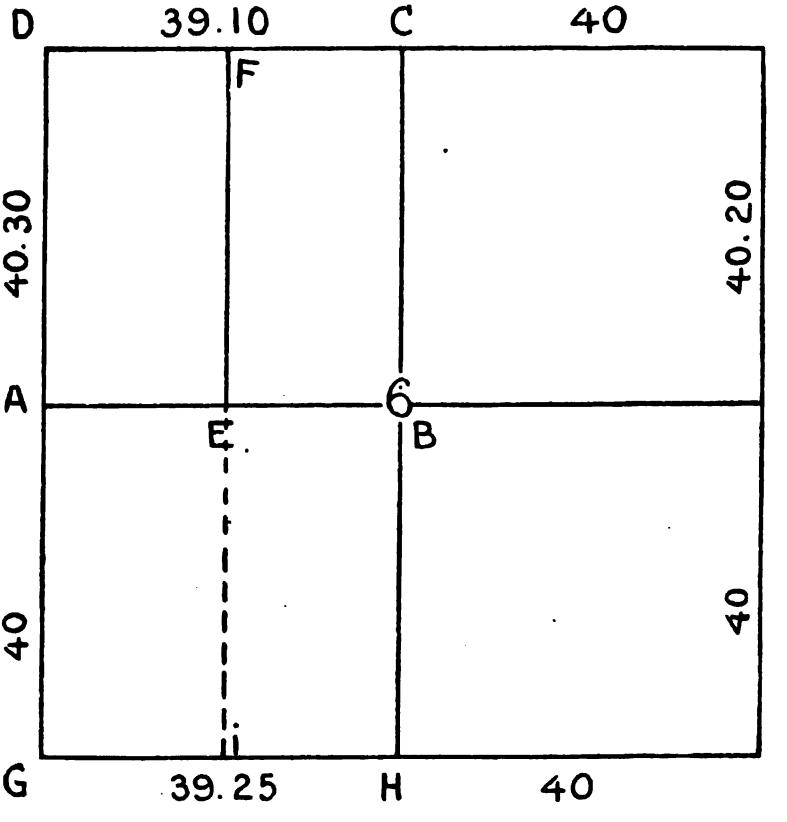


Fig. 107

§ 519. **Quarter-quarter corner in fractional section.**—Referring to Fig. 106, how is the quarter-quarter corner E to be located? The distances returned by the government surveyors are given on the plat. Of course, this corner must be located

20 chains government measure north of the center of the section. But the government surveyors did not give any distance of the line AB. You will first establish the center of the section. Then determine AB, government measure by a mean between HG and CD. HG is 40.20 chs. and CD 40.10 chs. Hence AB would be 40.15 chains, government measure. We will suppose the surveyor makes this distance 40.30 chains. Then 40.15 : 40.30 :: 20 : X. X will be 20.07 4/10. You will, therefore establish E at 20.07 4/10, your measure north of the center of the section. This would be 20 chains government measure.[8]

§ 520. **Quarter-quarter corner west half section six.**— Referring to Fig. 107, and assuming the government distances are as given on the plan, how should the quarter-quarter corner E be established? This should be established in the same way indicated in the previous proposition. Find the mean of DC and GH. DC is 39.10 and GH is 39.25, government measure. This would give 39.17 1/2 chs. for AB. Then assuming that the surveyor makes the distance AB 39.30 chains, you will have this proportion: 39.175 : 39.30 :: 20 : X. By computation X equals 20.06 3/10 chains. You will establish E 20.06 3/10 chains west of the center of the section. The same rule will apply in establishing the quarter-quarter corners in all of the sections on the north and west sides of the township, unless the section happens to be further complicated by a lake or some body of water, which may possibly make the application of a different rule necessary.[9]

§ 521. **Quarter corners north and west sides of section six.**—This is a case where no quarter corners were planted on the north or west sides of the section. Referring to Fig. 108, the distances returned by the government surveyor are given thereon. A recent measurement of the north side of this sec-

[8]R. L. C. 80; ante § 368.
[9]R. L. C. 80; ante § 368.

tion gives a distance of 79.40 chains, and of the west side of the section gives a distance of 80.50 chains. Directions: Run a direct line between A and B and plant west quarter corner on this line at 40 chains, government measure, north of the S. W. corner of the section. The proportion to determine on

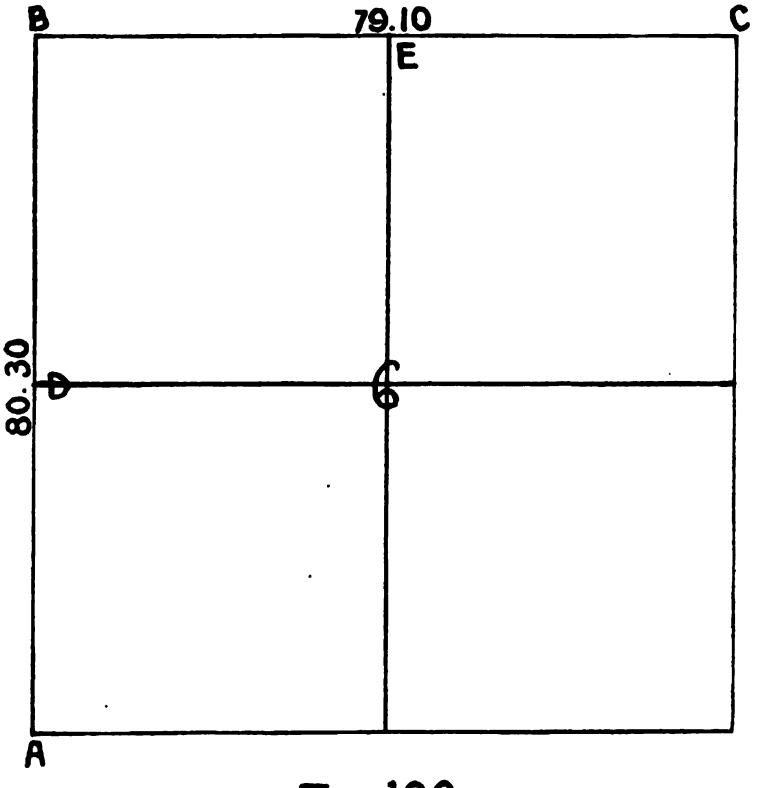


Fig. 108

the data will be: 80.30 : 80.50 :: 40 : X. X equals 40.09 9/10. Plant corner D at 40.09 9/10 chains new measurement, north of the S. W. corner of section, on a direct line between the two section corners.[10]

[10]Ante § 368.

Proceed in the same manner to establish the corner at E. The proportional for the latter corner will be: 79.10 : 79.40 :: 40 : X. X equals 40.15 1/10. Plant E 40.15 1/10 chains new measurement west of the N. E. corner of the section, on a direct line between the two section corners.[11]

§ 522. **Quarter corners, other than six on north and west sides township.**—Where the government surveyors failed to return quarter corners on the north and west sides of a township, other than section 6, the surveyor will plant such quarter corner on a direct line between the section corners and equidistant therefrom. This is the general rule. There may be instances by reason of bodies of water or external obstacles such as form a "fractional township" where a different rule might apply.[12]

§ 523. **Lost quarter corner, west side of section two.**—In reestablishing a lost quarter corner on a north and south section line, any difference in the length of such line by actual measurement, as compared to that indicated by the government survey, should be distributed between its north and south parts in proportion to their respective lengths as indicated by the same survey, and the whole deficiency should not be thrown on the north half of the section.[13] In the case just cited, the west quarter corner of section 2 was lost. The recent measurement did not agree with the former measurement. Fig. 109.

Suppose in a given case the government survey of the west side of section 2 gave a length of 79.80 chains, and the recent measurement a length of 80.20 chains. Then by computation the west quarter corner of the section would be 40.20 chains (new measurement) north of the southwest corner of the section. Such lost corner should be re-established in a direct line between the northwest and southwest corners of said section

[11]Ante § 368.

[12]R. L. C. 77; ante § 366.

[13]Jones v. Kimble, 19 Wis. 429; R. L. C. 59; ante § 355

2 and 40.20 chains new measurement north of the southwest corner of the section.[14]

§ 524. **Lost interior section corners common to four sections.**—In the event such corner can not be found after the

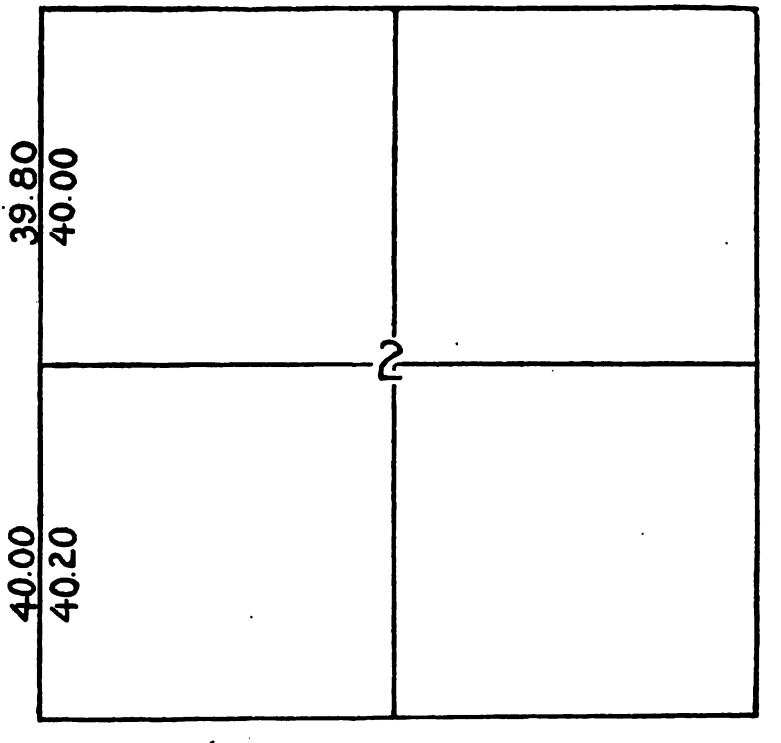


Fig 109

surveyor has made a most thorough search as laid down by the government rules, he should proceed as follows: First: Measure from the first known corner west to the first known corner east of the lost corner, and, in a direct line, plant a temporary corner at the required distance as determined

[14]R. L. C. 49; ante § 349.

proportionately to the original survey. Second: Measure from the first known corner south of the lost corner to the first known corner north thereof, and in a direct line plant a temporary corner at the required distance as determined, proportionately to the original survey. Third: From the temporary corner so set on the east and west lines run a line due

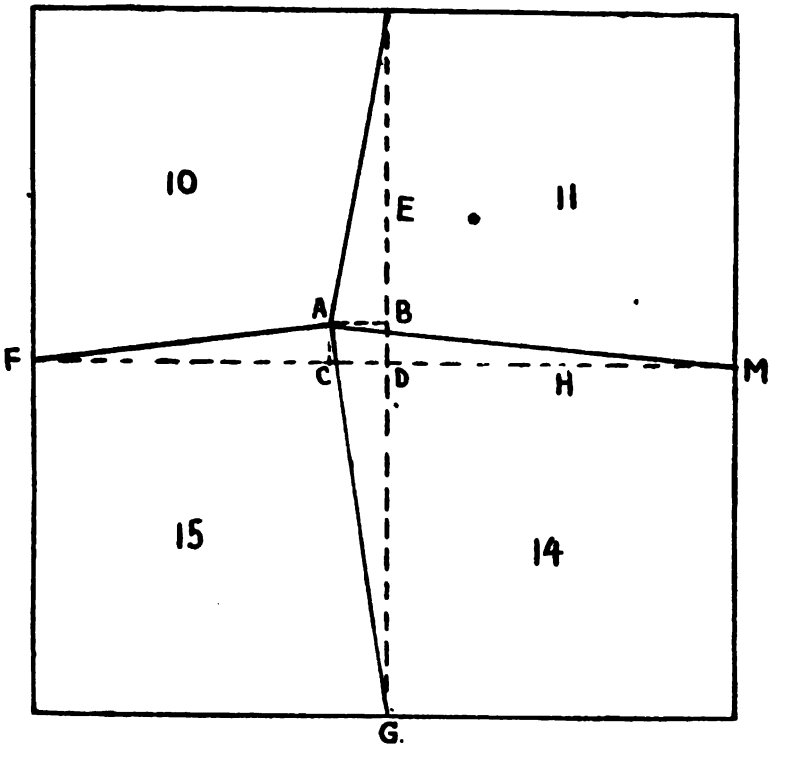


Fig. 110

north or south far enough to intersect a line run east or west, as the case may be, from the temporary corner on the north and south line of the section. Fourth: From the temporary

corner set on the north and south line run a line east or west, as the case may be, until it intersects the north and south line run from the other temporary corner. The point of intersection of the two lines will be the required corner.

As an illustration, suppose the corner common to sections 10, 11, 14 and 15, Fig. 110, is lost. We will assume that the first quarter corner north, and the first quarter corner east of the lost corner are known; that the first section corner west and the first section corner south are the nearest known corners in those directions. In the diagram "A" represents the lost section corner; "E" the first quarter corner north and "H" the first quarter corner east, both known; "F" represents the southwest corner of Section 10 and "G" the southeast corner of Section 15, the first known corners west and south respectively of the lost corner.

The surveyor will proceed as follows: First: Measure from F to H and plant a temporary corner at C, determined by proportional measurement, using original government distance as a basis. Second: Measure from G to E and plant a temporary corner at B, determined by proportional measurement, using original government distance as a basis. Third: From the temporary corner, C, run a line due north to intersect east and west line run from B. Fourth: From the temporary corner B run a line due west until it intersects the line run from C to A, which will be the section corner required.[15]

§ 525. **Lost corners common to four sections on town or range line.**—Lost corners common to four sections on town or range line will be re-established in the same manner laid down in the preceding paragraph.[16] "From this rule there can be no departure," say the instructions.

§ 526. **Lost corner common to two sections only on town or range line.**—In this instance measure the distance between

[15]R. L. C. 29; R. L. C. 51-52-56: ante § 356. [16]R. L. C. 29; ante § 343.

the nearest known corners on opposite sides of the lost corner and re-establish such lost corner in a direct line between such known corners at a point indicated by proportional measurements, using the original government distance as a basis. Measurements to check its position should be made to corners within the townships adjacent.[17]

§ 527. **Where section lines are not due lines.**—Where section lines are not due lines, and they are seldom so, in order to carry out the spirit of Sec. 2396 United States statutes pertaining to subdivision of fractional sections in "fractional townships," it will be necessary in running such subdivisional lines to "adopt mean courses," making the required line a mean between the section lines to the east or west or north or south thereof, as the case may be.

§ 528. **A lost closing corner.**—A lost closing corner from which a standard parallel has been initiated or to which it has been directed will be re-established by proportional measurements from the corners used in the original survey to determine its position. The surveyor should not measure from corners on the opposite sides of the parallel in such cases.[18]

§ 529. **A lost standard corner.**—A lost standard corner will be restored by proportionate measurements on the line, conforming as near as possible to the original field-notes and joining the nearest identified original standard corners on opposite sides of the lost corner.[19]

§ 530. **Restoration of township corners common to four townships.**—(a) Where position of original corner was made to depend on lines crossing at right angles to each other. First: Run line connecting the nearest identified corners on the meridional township line north and south of the missing corner and place temporary corner at the proper proportional distance. Second: Run a line connecting the nearest known

[17]R. L. C. 34; ante § 343.
[18]R. L. C. 47; ante § 352.
[19]R. L. C. 45; ante § 346.

original corners on the latitudinal township line east and west of the missing corner and place a temporary corner at the proper proportional distance. These temporary corners should be established without regard to each other. Third: Through first temporary corner run a line east or west to intersect a line running north or south, as the case may be, through the second temporary corner. The intersection of the two lines will be the corner.[20]

(b) Where position of original corner was located by measurements on one line only, run a direct line between the nearest original known corners east and west or north and south of the lost corner and establish such corner at a proportional distance on such line.[21]

§ 531. **Re-establishment of lost closing corner.**—The rules provide that the distance from a closing corner to the nearest standard corner on such base or standard line shall be carefully measured and noted.[22] To re-establish measure from the quarter-section, section or township corner east or west as the case may be, to the next preceding or succeeding corner in the order of original establishment and establish the lost closing corner by proportionate measurement.[23] If the distance between the double corners is not given; neither the distance east or west of the missing corner, the surveyor should compute the latter distance by a reference to the areas of the adjacent subdivisions. After this has been done, he can re-establish the missing corner by a proportionate computation.[24]

§ 532. **Re-establishment of meander corners.**—Two propositions arise, (a) To establish from a known quarter corner on the line approaching the meander corner: Before proceeding with re-establishment the surveyor should carefully rechain at least three of the section lines between known cor-

[20]Ante § 350; ante § 524.
[21]Ante § 350; ante § 526.
[22]Manual 143 (1902).
[23]R. L. C. 55.
[24]R. L. C. 58; ante § 357.

ners of sections in the same township within which the lost corner is to be re-established. In this manner, he will find the proportional measurement to be used. He should also ascertain the real course used by the original surveyor. In the instant case, it will be indicated by the course of the line

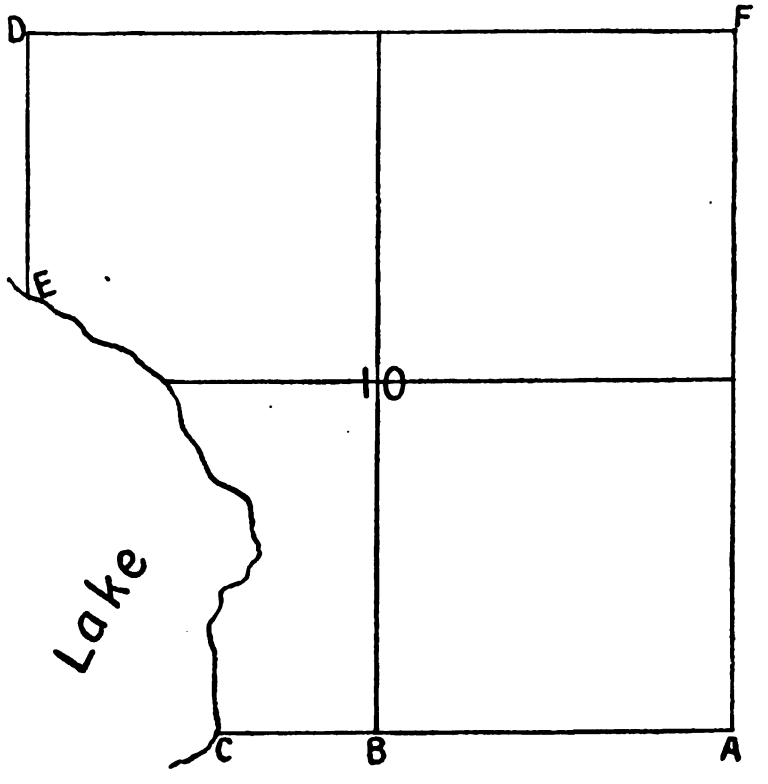


Fig. 111

between the known quarter corner and the known section corner on the opposite side of such quarter corner. Such line should be prolonged from the quarter corner to the lake or other boundary line, and the meander corner established on

such line at the ascertained proportional distance from the quarter corner. Referring to Fig. 111, C represents the lost corner. The quarter corner B and the Section Corner A are known. Prolong AB to C and plant C at a proportional distance from B as outlined herein.

(b) To establish from a known section corner on the line approaching the lost meander corner, ascertain the real course used by the original surveyor and test the course by known lines in sections in the same township. Take the average of several courses and run a line on the course so determined from the section corner to the lake or other boundary and plant the corner on said line at the proportional distance from said section corner, as determined by test proportional measurements. Referring to Fig. 111, E represents the lost meander corner; D the known section corner. The field-notes show the line DE to have been run originally due north and south. Determine the average course of at least three known lines in sections in same township. Suppose such average shows a course of N 40′ E instead of due north. Hence, the surveyor will run a line S 40′ W from D, which would be equivalent to the government course of due north and south, to the lake or other boundary. He will plant the established corner on such line at an average proportional distance from section corner D.[25]

§ 533. **To re-establish one of two double corners.**—The surveyor should first determine to which sections the known double corner belongs. Having so determined, he will establish the missing double corner in line between the known double corner and the nearest original corner on the opposite side of such missing corner, at a proportionate distance according to government survey. This on the theory that the field-notes give the distance between such double corners.[26]

[25]R. L. C. 67-8; ante § 362.
[26]R. L. C. 62; ante § 357.

§ 534. **Re-establish double corner where both are missing.** —(a) To re-establish one, set when township was run: Connect the nearest known corners on the township line by a right line and re-establish the missing corner by proportionate measurements according to the original survey. In this operation, the surveyor should not confuse township corners with closing corners. The corner thus restored will be common to two sections, either north or west of the township line.[27]

(b) To re-establish the double corner, set when the township was subdivided: First: Retrace the original township line according to the field-notes of the original survey and mark it in the vicinity of the missing corner. Second: Retrace the section line closing on the missing double corner to an intersection with the township line and set a temporary corner at such point. Third: Carefully test the temporary corner at point of intersection by remeasurements to objects and known corners on the township line as noted in the field-notes of the original survey. Fourth: Make the necessary corrections in the location of the temporary corner as indicated by the remeasurements, and erect a permanent corner at the proper place.[28]

§ 535. **To re-establish one missing triple corner on range line.**—Only two of such corners are common to sections; the third was established when the range line was run. (a) Where the field-notes give the distances between the triple corners. First: The surveyor will identify the existing corner or corners in line north or south of the missing corner. Second: Re-establish the missing corner or corners in line north or south of the known corners by proportional measurements according to the original survey in the manner indicated in this work for re-establishment of double corners. The accuracy of the work should be tested by proportional measurements to all known objects as noted in the field-notes.

[27] R. L. C. 63; ante § 358.
[28] R. L. C. 55-64; ante § 359.

(b) Where the field-notes do not give the distances between the triple corners. First: Retrace the original range line and mark it in the vicinity of the various triple corners. Second: Retrace the section lines closing upon the missing corners according to the notes of the original survey in the manner indicated in this work, placing temporary corners at the point of intersection with the range line. Third: Carefully test the temporary corners at points of intersection with the range line by measurements to objects and known corners on such line as indicated in the field-notes. Fourth: Make the necessary corrections in the location of the temporary corners as indicated by the remeasurements and erect a permanent corner in the manner set out in this work for re-establishing missing double corners. In making these measurements the surveyor should studiously follow all data concerning the lines under consideration as recorded in the field-notes. The work will be unsatisfactory and the checks quite unreliable at the best, as the areas of adjacent tracts as indicated on the plats may be incorrect.[29]

§ 536. **Re-establish triple corners on range line where all are missing.**—First: Re-establish the corners set when the range line was run by proportional measurements as indicated in this work for restoring section and quarter-section corners on town lines.[30] Second: Re-establish the two remaining corners according to the rule laid down in this work for re-establishment of double corners.[31]

§ 537. **To restore fractional section lines closing upon reservations or grants to private persons.**—(a) Where the point of intersection of such line with the boundary line was indicated in the field-notes by distances to known corners on such boundary line and on opposite sides of such point of intersection, the surveyor will establish such point on the boun-

[29]Ante § 360.
[30]Ante § 36
[31]R. L. C. 66; ante § 361.

dary line by proportional measurements to such known corners. Connect the point so fixed with the section or quarter-section corner nearest thereto east or west or north or south as the case may be.

(b) Where the point of intersection of such line with the boundary line is not indicated in the field notes by distances to known corners on the boundary line. First: Retrace the original boundary line as indicated by the field-notes, placing a temporary mark in the vicinity of the closing fractional section line. Second: Ascertain the real course used by the original surveyor and test the same by taking the average comparative course of three or more lines of sections in the same township and run at the same time. Third: Using such comparative average course, the surveyor will run the required line by such course from the nearest interior corner either known or re-established prior thereto. Fourth: Test the point of intersection with the Indian or other boundary line by all possible proportional measurements.[32] See DE Fig. 111.

§ 538. **Relocation of moved corners.**—County surveyors are frequently called upon to restore corners which have been moved, either by accident or purposely. In such case, the surveyor will proceed in the same manner as for the restoration of lost corners. This may not be very satisfactory to the owners of the property adjacent to the moved corner but it is the only thing to do, except the interested parties may submit their differences to the local courts for adjudication.[33]

§ 539. **To establish west quarter corner of section six.**—The west quarter corner of section six in a certain township was never established. The southwest corner and the northwest corners of the section are known. The original measurement of the west side of the section was 78.60 chains and recent measurement 79.50. Required to establish the west quarter

[32]R. L. C. 71; ante § 363; ante § 532.

[33]R. L. C. 71; ante § 363.

corner. *Operation.* This quarter corner must be established in a direct line between the two section corners, 40 chains north, government measure, of the southwest corner of the section. Therefore, run a direct line between the two section corners and plant the quarter corner on said line 40 chains, original measure, or 40.458 chains recent measure, north of the southwest corner of the section. The proportional statement to secure the result would be: 78.60 Chs. : 40.00 Chs. :: 79.50 Chs. : X. The surveyor will readily note that it would not do to plant the corner 40 Chs. recent measure north of the southwest corner of the section unless the original measure and the recent measure were exactly the same.[34]

§ 540. **To establish 1/16 corner of same section north of the quarter corner.**—Proceed as above to establish the west quarter corner. This would give the distance between the northwest corner of the section and the west quarter corner, government measure 38.60 chains, or recent measure, 39.50 chains. The 1/16 corner should be placed on a direct line between West 1/4 corner and the northwest corner of the section, 20 chains north, original measure, of the west quarter corner. The original measure was 38.60 chains and the recent measure by computation is 39.042 chains. The proportion would be 38.60 : 20 :: 39.042 : X. This would give a recent measure of 20.229 chains north of the west 1/4 corner of the section. The west 1/16 corner of the section south of the quarter corner, of course, would be midway on a direct line between the southwest corner of the section and the west 1/4 corner.[35]

§ 541. **To establish north quarter corner of section six in a township bordering on correction line north.**—In this case, the north quarter corner was never established. The northwest and northeast corners of the section are known. The

[34]Ante § 521.
[35]Ante § 519.

original measure of the north side of the section was 77.40 chains. The recent measure is 78.20 chains. The north quarter corner must be established on a direct line between the section corners at a point 40 chains, original measure, west of the northeast corner of the section. By computation, the recent measure of the distance west of said corner would be 40.413 chains. The proportion would be: 77.40 : 40 :: 78.20 : X. This gives 40.413 chains, the distance, recent measure, of the north quarter corner, west of the northeast corner of the section.[36]

§ 542. **To establish north quarter corner of section five in a township bordering north on a correction line.**—The northwest and northeast corners of said section, we will assume, are known. The north quarter corner must be established midway and on a direct line between such section corners. The same rule will apply to sections 1, 2, 3, and 4 of a township similarly situated.[37]

§ 543. **To re-establish the east quarter corner of section five.**—In this case, we will assume, the northeast and southeast corners of the section are known. The east quarter corner is lost. The east side of the section, original measure, was 74.48 chains. The east quarter corner must be placed on a direct line between the northeast and southeast corners of the section 40 chains, original measure, north of the southeast corner thereof. On running the east side of the section the recent distance is found to be 74.12 chains. By proportion we find the east quarter corner should be placed 39.806 chains, recent measure, north of the southeast corner of the section. The proportional statement: 74.48 : 40.00 :: 74.12 : X. X is found to be 39.806 chains. The east and west quarter corners of sections 1, 2, 3, and 4 similarly situated, would be reestablished in a like manner.[38]

[36]Ante § 521.

[37]Ante § 522.

[38]Ante § 523.

§ 544. **Observations on different methods of establishing quarter-quarter corners north of center in fractional sections.**— The author has followed the method of establishing such quarter-quarter corners, which seemed to him most equitable and in harmony with the general instructions of the land department of the government in the subdivisions of sections. The reader is referred to an earlier chapter of this work.[89] We are not unmindful of the fact that another method has frequently been used, by reputable surveyors, in the locations of such corners. The method sometimes used is to fix the 1/16 corners on the section lines opposite each other and connect these 1/16 corners by a direct line, fixing the quarter-quarter corner at the point of intersection of such line with the quarter line.

In order to get the view point of the land office, the author wrote the following letter to the commissioner of that office: "Commissioner of General Land Office: Dec. 6, 1917. Washington, D. C.

"Dear Sir,—

In the diagram below, (Fig. 112), I would thank you to give me the rule promulgated by your office with reference to establishing the N. W. corner of S. W. 1/4 of N. E. 1/4 of section 5 of a supposed township. Suppose the government measurements, in part, of said section are as follows: West side of northwest quarter 40.10 chains; East side of N. E. 1/4 40.20 chains; the present measurements are as follows: West side of N. W. 1/4 40.30 chains; East side of N. E. 1/4 40.35 chains; West side of N. E. 1/4 40.45 chains.

There is some authority for establishing point "A" on the diagram (N. W. Cor. of S. W. of N. E.) as follows: Compute government distance 5-C (west side of N. E. 1/4) by making it a mean between the government measurements of west side of N. W. and east side of N. E.; that is a mean be-

[89]Ante Ch. XV.

tween 40.20 and 40.10 or 40.15. Then take present measurement of 5-C (40.45 Chs.) and establish "A" by proportional measurement of present distance with the computed government measurement. This would make point "A" 20.149

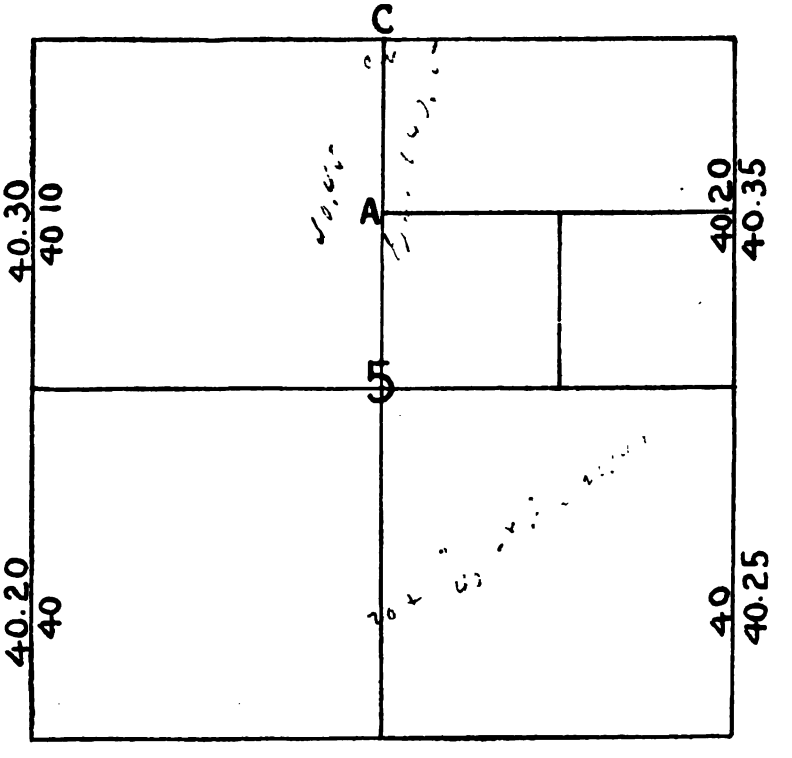


Fig. 112

chains present measurement north of center of section. Would you condemn this method?

Of course, the chances are this would not fix said point, in this instance, at the same place it would be fixed by establishing the N. E. corner of S. E. of N. E. and from that point run a line parallel with the east and west quarter line west until

it intersects the north and south quarter line. I would like your suggestions on this proposition and also the manner laid down by your office in fixing point "A."

Thanking you for an early reply, I am,
Yours truly,
F. E. CLARK."

Under date of December 15, 1917, the general land office replied as follows:

"571095 "E" CGT."
"Department of the Interior,
General Land Office,
Washington, December 15, 1917.

"Mr. F. E. Clark,
Attorney at Law,
729 Plymouth Bldg.,
Minneapolis, Minn.
My Dear Sir:—

In reply to your letter of December 6, 1917, relative to the procedure to be followed in the establishment of the northwest corner of the SW 1/4 NE 1/4 of a hypothetical section, you are informed that the method outlined in the second paragraph of your letter is correct, and is indorsed by this office. A quarter section should properly be subdivided upon the principles which are applied in the subdivision of a full section, and consequently, the suggestions contained in the third paragraph of your said communication can not be approved. It is true, moreover, as noted in your letter, that only under exceptional conditions would the points determined by the two methods coincide.

Very respectfully,
D. K. PARROTT,
Acting Assistant Commissioner."

The government distances are given within the section lines and present measurements are given without the section lines on the diagram.

In view of the fact of the approval of the method laid down in this work for fixing the northwest corner of the SW 1/4 of the NE 1/4 of fractional section 5, by the commissioner of the general land office, we advise that this method be followed in all similar cases of fractional sections. It follows the rule for the subdivision of a full section and is equitable to the proprietors of the lands therein.[40]

[40]Ante § 519.

CHAPTER XX

DEDICATION AND ESTOPPEL

Sec.
545. Generally.
546. Dedication to public or charitable use.
547. Methods of dedication.
548. Dedication by plat—Acceptance.
549. What title passes? Status of land. Rights of dedicator.
550. Completed dedication irrevocable—Reverter.
551. Certain facts do not constitute dedication.
552. Reservation of minerals in dedication of street.
553. Estoppel of grantee as against public.
554. Estoppel of proprietor of plat.
555. Words of dedication.

§ 545. **Generally.**—One of the important duties of the surveyor is the surveying of lands into blocks and lots, the making and certification of a plat of the lands so surveyed and the recording of the plat, in the office of the register of deeds of the county where the land lies. That subject will be considered in a later chapter of this work.[1] However, the subject of dedication and estoppel is closely connected therewith and naturally requires brief consideration in this work. We propose to treat this subject briefly and will inquire into dedications, express and implied, and will consider what acts may result in a dedication of a part of the lands of which title may be in the donor.

Dedication implies a donor and a donee. The owner of land may dedicate the whole or any part thereof to a municipality, to a religious organization, to a college or school, in fact, to a public or charitable purpose unless forbidden by statute. No consideration is necessary to pass to the donor, except that

[1]Post Ch. XXIII.

to make a legal dedication there should be an acceptance thereof by the donee. Such acceptance may be implied. After a dedication to the public has been made and accepted, every member of that public has an interest in the thing dedicated—not an individual interest, but one in common with the public generally.

§ 546. **Dedication to public or charitable use.**—Dedication is an appropriation of land to some public or charitable use by its owner, such owner reserving to himself no interest in the soil other than such as are consistent with the full enjoyment of such public or charitable use.[2] The principle of the dedication of land to the public use is of very ancient origin and evidently has been practiced since private individuals were permitted to own land. However, the law of dedication may be said to be of purely common-law origin.[3] The gist of dedication is that it must be for the use of the public at large and not for a mere private purpose.[4] However, the principle has been invoked to uphold gifts for pious, charitable, church, school, cemetery and similar uses, even though the benefits are to be enjoyed by a limited class only, and not by the public at large.[5]

§ 547. **Methods of dedication.**—It is unnecessary that there be a writing to effect dedication. Anything which evidences the intention of the owner to give and the public or charity to accept the gift is sufficient.[6] Dedication may be made with or without writing by any act of the owner. Throwing open land to the public travel, platting and selling lots bounded by

[2]Bessemer Land and Improvement Co. v. Jenkins, 111 Ala. 135, 18 So. 565, 56 Am. St. 26; Bushnell v. Scott, 21 Wis. 451, 94 Am. Dec. 555; Benn v. Hatcher, 81 Va. 25, 59 Am. Rep. 645.

[3]Gowen v. Philadelphia Exchange Co., 5 Watts & S. (Pa.) 141, 40 Am. Dec. 489.

[4]Hall v. McLeod, 2 Metc. (Ky.) 98, 74 Am. Dec. 400.

[5]Davidson v. Reed, 111 Ill. 167, 53 Am. Rep. 613; Deepwater R. Co., v. Honaker, 66 W. Va. 136, 66 S. E. 104, 27 L. R. A. (N. S.) 388.

[6]Vick v. Vicksburg, 1 How. (Miss.) 379, 31 Am. Dec. 167; Marion v. Skillman, 127 Ind. 130, 26 N. E. 676, 11 L. R. A. 55.

streets, designated on the plat as such, or acquiescence in the use of the land by the public or the charity are acts of dedication.[7] The intention of the owner to set apart the land to the particular use is the gist of the act. Intention may be shown by a writing or by parol.[8] The statute of frauds does not apply to a dedication of land to the public or charitable use.[9]

§ 548. **Dedication by plat—Acceptance.**—The dedication of land by plat of the owner is the most common manner of setting off property to the use of the public and that which most concerns surveyors. As is well known such dedications are effected by designating on the plat the streets, parks, squares, school sites, church sites, library sites, city hall sites, etc.[10] In some states the acknowledgment and recording of a plat is equivalent to a transfer of the parts designated thereon for public use. The theory is that the public is presumed to have accepted the property so dedicated, especially where there is no consideration to be paid or no obligation on the part of the public to do or not to do certain things.[11] Acceptance in some form seems to be essential.[12] Acceptance inferred by use of street dedicated.[13]

Acceptance is practically implied in some cases.[14] But,

[7]Lake Erie, etc., R. Co. v. Witham, 155 Ill. 514, 40 N. E. 1014, 46 Am. St. 355, 28 L. R. A. 612.

[8]Gentleman v. Soule, 32 Ill. App. 271, 83 Am. Dec. 264; Edwards & Walsh Construction Co. v. Jasper Co., 117 Iowa 365, 90 N. W. 1006, 94 Am. St. 301.

[9]Hayes v. Livingston, 34 Mich. 384, 22 Am. Rep. 533.

[10]People v. Wolverine Mfg. Co., 141 Mich. 455, 104 N. W. 725, 113 Am. St. 544; Porter v. International Bridge Co., 200 N. Y. 234, 93 N. E. 716, 21 Ann. Cas. 684; Thousand Island Park Assn. v. Tucker, 173 N. Y. 203, 65 N. E. 975, 60 L. R. A. 786.

[11]Carroll v. Village of Elmwood, 88 Nebr. 352, 129 N. W. 537, 33 L. R. A. (N. S.) 1053; Whiting v. Hoglund, 127 Wis. 135, 106 N. W. 391, 7 Ann. Cas. 224.

[12]Mahler v. Brumder, 92 Wis. 477, 66 N. W. 502, 31 L. R. A. 695.

[13]Mahler v. Brumder, 92 Wis. 477, 66 N. W. 502, 31 L. R. A. 695.

[14]Wallace v. Cable, 87 Kans. 835,

nevertheless, there must be some kind of acceptance.[15] Acceptance need only be made within a reasonable time.[16] In absence of statutory requirement formal acceptance is not generally necessary, but it may be necessary in order to render a municipality liable for up-keep.[17] The authorities do not seem to be uniform as to implied acceptance by user but the later cases sustain the doctrine that dedication may be accepted by long continued public user.[18]

§ 549. **What title passes? Status of land: Rights of dedicator.**—Title need not vest in the intended use. The fee may remain in the donor, subject to an easement in the donee.[19] Whether or not title passes, the land is held in trust for the use intended, and the dedicatee can not divest itself of its holding.[20] The dedicator may prescribe limitations on the gift.[21] The state can not destroy the trust.[22] A city may build a wharf on a dedicated street bordering on a navigable stream.[23]

The dedicator may maintain suit to restrain a violation of the restriction in the gift.[24] It is held in some jurisdictions that third persons may maintain such suit.[25] But this is denied

127 Pac. 5, 42 L. R. A. (N. S.) 587.

[15]People v. Reed, 81 Cal. 70, 22 Pac. 474, 15 Am. St. 22.

[16]Lee v. Harris, 206 Ill. 428, 69 N. E. 230, 99 Am. St. 176.

[17]Downend v. Kansas City, 156 Mo. 60, 56 S. W. 902, 51 L. R. A. 170.

[18]Bessemer Land and Improvement Co. v. Jenkins, 111 Ala. 135, 18 So. 565, 56 Am. St. 26.

[19]Hoboken M. E. Church v. Hoboken, 33 N. J. L. 13, 97 Am. Dec. 696; White v. Jefferson, 110 Minn. 276, 124 N. W. 373, 125 N. W. 262, 32 L. R. A. (N. S.) 778.

[20]Sears v. Chicago, 247 Ill. 204, 93 N. E. 158, 139 Am. St. 319, 20 Ann. Cas. 539; Gaskins v. Williams, 235 Mo. 563, 139 S. W. 117, 35 L. R. A. (N. S.) 603.

[21]South Parks Comrs. v. Ward, 248 Ill. 299, 93 N. E. 910, 21 Ann. Cas. 127.

[22]St. Paul v. Chicago Ry. Co., 63 Minn. 330, 63 N. W. 267, 65 N. W. 649, 68 N. W. 458.

[23]Backus v. Detroit, 49 Mich. 110, 13 N. W. 380.

[24]Daniels v. Chicago Ry. Co., 35 Iowa 129, 14 Am. Rep. 490.

[25]Davenport v. Buffington, 97 Fed. 234, 46 L. R. A. 377.

in other states.[26] Generally the dedicator may withdraw his offer before acceptance.[27]

In a Minnesota case, A platted a tract of land as "A's addition," the plat showing streets. In 1889, one of the streets was duly vacated and a record of such vacation was made. In 1892, A conveyed to B lots 23 and 24 of said plat between which said vacated street originally was laid. In 1906, A's trustee conveyed to C by metes and bounds the vacated street between the said lots 23 and 24. It was held in a contest between B and C that B secured title only to the two lots as originally bounded and that his deed did not carry the street as originally laid out and that the deed to C did carry the vacated street.[28] Had the deed to B been executed before the vacation of the street it is likely that it would have carried title to the center of the street subject to the public easement, and that upon vacation, the title would be in B freed from any other interest.[29]

§ 550. **Completed dedication irrevocable—Reverter.**—A dedication once made and accepted is irrevocable.[30] Generally the land will revert to dedicator when the specified use becomes impossible, or when there has been an abandonment by dedicatee.[31] A court of equity can not extinguish the right of reversion.[32] The right of reversion is an important one: The donor may justly complain of acts inconsistent with the trust. If the use is specifically set out in the instrument of trust or donation, that governs.

[26]Smith v. Heuston, 6 Ohio 101, 25 Am. Dec. 741.

[27]People v. Reed, 81 Cal. 70, 22 Pac. 474, 15 Am. St. 22.

[28]White v. Jefferson, 110 Minn. 276, 124 N. W. 373, 125 N. W. 262, 32 L. R. A. (N. S.) 778.

[29]White v. Jefferson, 110 Minn. 276, 124 N. W. 373, 125 N. W. 262, 32 L. R. A. (N. S.) 778.

[30]Marion v. Skillman, 127 Ind. 130, 26 N. E. 676, 11 L. R. A. 55; Webb v. Demopolis, 95 Ala. 116, 13 So. 289, 21 L. R. A. 62.

[31]Newark v. Watson, 56 N. J. L. 667, 29 Atl. 487; Campbell v. City of Kansas, 102 Mo. 326, 13 S. W. 897, 10 L. R. A. 593.

[32]Board of Education v. Van Wert, 18 Ohio St. 221, 98 Am. Dec. 111.

§ 551. **Certain acts do not constitute dedication.**—The designation of the margin of a navigable stream by parallel lines upon the plat of a city addition does not operate as a dedication of the land between such lines to the public. Such platted river lines only indicate where the owner expected the river to be when improved, and do not limit the boundaries of lots, which will extend to the river, notwithstanding the plat lines. A riparian proprietor upon a river owns to the center thereof, subject to the easement of the public, over the navigable portion of the stream. Such an owner, on a navigable stream, has, without legislative authority, a right to erect docks and wharves, conforming to the regulations of the state, for the protection of the public, and to so place them as to have the benefit of the navigable part of the stream. Such right to build docks terminates at the point of navigation.[33]

One who grants land as bounding on a street, and owns the strip of land so described as a street, can not be compelled in equity, at the suit of the grantee, to open and maintain the strip "as a street fit for travel."[34]

§ 552. **Reservation of minerals in dedication of street.**—A conveyance of land bounded by a public street, carries the title to the center of the street, unless the contrary is clearly expressed. Where the owner of platted land dedicated the streets to the public, reserving the minerals therein, with the right to mine the same, and subsequently conveyed the abutting lots, merely by number, without a reservation of the minerals, the latter will pass to the grantee of the lots.[35]

§ 553. **Estoppel of grantee as against public.**—Where one purchases lots according to a recorded plat, which are partly upland and partly tide land, with an alley and other lots platted

[33]Chicago v. Van Ingen, 152 Ill. 624, 38 N. E. 894, 43 Am. St. 285.

[34]Hennessey v. Old Colony & N. R. Co., 101 Mass. 540, 100 Am. Dec. 127.

[35]Snoddy v. Bolen, 122 Mo. 479, 24 S. W. 142, 25 S. W. 932, 24 L. R. A. 507.

over tide water in front of them the purchaser is estopped from claiming any rights beyond the platted boundaries of his lots, as against the rights of the public in said alley, and of those in possession of the lots beyond such alley.[36]

§ 554. **Estoppel of proprietor of plat.**—The plat of M's addition to a city recorded in 1847, showed a street on the east side forty feet in width. The plat of C's addition to the same city, recorded in 1848, showed a street on the west side forty feet in width, which, together with the forty feet on the east side of M's addition, was represented as constituting one continuous street eighty feet in width. There was nothing on the plat, nor any monument on the land, to indicate that there was any space between the two platted tracts; but there was, in fact, an intervening strip of twenty-seven feet belonging to M. The whole space of one hundred and seven feet has been used as a public street since platting the land, and lots have been sold on each side with reference to said plats. Held that M and those claiming under him are estopped from setting up title beyond the actual center of the street, as against persons who purchased lots on the opposite side of the street, after recording of said plats, without actual notice of M's title to said strip. If the original boundary lines had appeared on the plats it would effectually be notice of M's rights.[37]

§ 555. **Words of dedication.**—The courts are frequently called upon to construe the wording of plats of subdivisions and additions to cities and villages and also the plats themselves with wordings thereon. One of the questions which finds itself before the courts of last resort, often, is that of the dedication of certain parts of platted grounds to the municipality, or more properly to the public. If the dedication is to the public all lot owners in the vicinity have an interest in the dedi-

[36]Kenyon v. Knipe, 2 Wash. 394, 27 Pac. 227, 13 L. R. A. 142.

[37]Weisbrod v. Chicago & N. W. Ry. Co., 18 Wis. 35, 86 Am. Dec. 743.

cated lands. It has been held that, "land * * * marked on the plat as 'public ground,' or, as 'not to be occupied with buildings of any description,' or, as 'public ground—no buildings,' constitutes a dedication of such land in trust for the public."[38] It will be seen that words of dedication on the plat play an important part in the act of dedication.

[38]Chicago v. Ward, 169 Ill. 392, 48 N. E. 927, 61 Am. St. 185, 38 L. R. A. 849.

CHAPTER XXI

AGREEMENTS ON BOUNDARIES AND SURVEYORS

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§ 556. **Generally.**—An important branch of the subject under consideration is that of agreements between adjacent proprietors of land as to the boundary line between them. Important for the reason that by so making such an agreement, parties, under certain circumstances, are precluded from insisting on the correct line when later ascertained. It is held generally that where there is an honest dispute between adjoining owners as to the location of the true line between them, and they establish a line and agree on such line as the division line, and thereafter both parties occupy and claim up to such line, on their respective sides, for the statutory period, they will be precluded from claiming beyond such line.

In fact, it has been held that title can be and frequently is acquired by adverse possession in that manner.

Likewise parties sometimes agree to call in a surveyor and have him run the division line between them. Whether or not they will be bound by the line so run will depend on the circumstances in each case. The courts have not always been in harmony as to the binding effect of such an agreement on the line so run. It is generally held that the parties will not be bound where the surveyor has made a mistake in running the line, and the parties were ignorant of such mistake, or did not assent to it. However, a careful examination of the facts in each case is essential and then an application of the law as found in the adjudicated cases to those facts. We quote herein from some of the leading adjudicated cases on the subjects of this chapter.

§ 557. **Parol agreement as to boundary.**—Where monuments or boundaries have been obliterated so as to leave the location a matter of uncertainty, a parol agreement as to the boundary is binding. Of course, this agreement must be entered into between the owners of adjoining lands and must have been acted on.[1] And it is said: "A disputed question of boundary, where the true line is indefinite, or uncertain, may be determined by parol agreement between the parties" owning adjoining tracts.[2]

§ 558. **Consent to rectify crooked boundary.**—A verbal consent to rectify a crooked boundary, which has been acquiesced in for twenty-five years, is not sufficient, in itself, to change the possession, and may be revoked before the boundary is changed.[3]

§ 559. **Boundary line agreed upon conclusive.**—A boundary line expressly agreed upon is conclusive on the parties.[4]

[1]Clark v. Wethey, 19 Wend. (N. Y.) 320.

[2]Vosburgh v. Teator, 32 N. Y. 561; Stout v. Woodward, 71 N. Y. 590.

[3]Dunham v. Stuyvesant, 11 Johns. (N. Y.) 569.

[4]McCormich v. Barnum, 10 Wend. (N. Y.) 104.

§ 560. **Trustee bound in private capacity also.**—A grantor is bound in his private capacity to a boundary settled by him as trustee. He can not acknowledge a line in one capacity, and deny it in another.[5]

§ 561. **Ignorant as to line and agreement between owners.**—Owners of adjoining lands between whom there is no dispute as to the location of the boundary line between them, but who are ignorant as to its true location, and for that reason employ a surveyor to locate it for them, are not bound by its location, if incorrect, even though they afterwards acquiesce in it, believing it to be correct.[6] But the owners of land on opposite sides of a line, having agreed upon a certain line, as the true line, between them, and such line then being in dispute, will be bound thereby, if occupied adversely to that line the statutory period.[7]

§ 562. **Agreements on dividing line not a conveyance.**—An agreement between adjoining owners fixing a boundary line between them is not valid for any other purpose than that of settling an uncertainty in regard to the common boundary: and if they agreed to a division line knowing it was not the true line, and with the purpose of transferring from one to the other of a body of land, which they both knew was not according to the truth, the agreement will not be enforced.[8] If a transfer of land by the above method should be sanctioned by the courts, the statutes providing that all conveyances of lands should be in writing, would be nullified. Hence, the so-called "line agreements" are sanctioned only where there

[5]Wood v. Livingston, 11 Johns. (N. Y.) 36.

[6]Pickett v. Nelson, 79 Wis. 9, 47 N. W. 936.

[7]Watrous v. Morrison, 33 Fla. 261, 14 So. 805, 39 Am. St. 139.

[8]Lewis v. Ogram, 149 Cal. 505, 87 Pac. 60, 10 L. R. A. (N. S.) 610, 117 Am. St. 151.

is an honest dispute between the parties as to the line and where such line is not known.

Persons owning adjoining lands may, by agreement, establish the boundary between their lands, regardless of the lines of the government survey and when said agreement is clearly proved and the parties have occupied on each side of said line for the statutory period, claiming to own to that line and holding adversely it will be regarded as the true line.[9]

§ 563. Party not estopped under certain circumstances.—Where adjoining owners hire a surveyor to run the line between their lands and he does attempt to run such line, the line so run will not bind the parties unless correctly run. And it has been held that, "If lines have been run by a surveyor at the common expense of owners of adjoining lands, and boundary marks set up, and one party adopts a line thus run, and builds in conformity with it, the other party is not thereby estopped from claiming that it is not the true line, if it does not appear that he knew that the other was incurring expense upon the faith of a supposed agreement to treat the line thus run as the true line.[10]

But where there is a dispute between adjoining proprietors as to the true line between them, and they are ignorant of the true line; and they fix and agree upon a permanent boundary line and take possession accordingly, the agreement is binding on them and those claiming under them.[11] In case of Kitchen v. Chantland, the defendant had consented to a survey to establish the division line between his land and the plaintiff's and after it was made, recognized the line as fixed by the surveyor as the true one, and not only constructed improvements with reference thereto, but saw plaintiff making improvements and incurring expenses, relying on such survey, without

[9]Cox v. Daugherty, 75 Ark. 395, 36 S. W. 184, 112 Am. St. 75.

[10]Thayer v. Bacon, 3 Allen (Mass.) 163, 80 Am. Dec. 59.

[11]Krider v. Milner, 99 Mo. 145, 12 S. W. 461, 17 Am. St. 549; Kitchen v. Chantland, 130 Iowa 618, 105 N. W. 367, 8 Ann. Cas. 81.

objecting thereto. The court says: "Contrary to defendant's contention, the rule of law is well settled, that if there be doubt or uncertainty, or a dispute as to the true location of a boundary line, the parties may by parol fix a line which will, at least, when followed by possession with reference to the boundary so fixed, be conclusive upon them, although the possession may not have been for the full statutory period."[12] On the other hand it is said, "Parties are not bound by an erroneous agreement entered into relative to a boundary line."[13]

Not essential to adverse holding that the land be inclosed. This principle has been frequently set forth. We find: "Not essential to adverse holding that the land so held be inclosed. How boundary is marked not so important if it is well defined. If land be cultivated under claim or right for statutory period the adverse holding will extend to the limits cultivated."[14]

§ 564. **Agreement to employ a surveyor.**—An agreement between adjoining owners to employ a surveyor to establish a boundary line does estop either from showing a mistake in the line as run.[15] When adjoining land owners cause their land to be surveyed, and the division line to be established between them, such survey conclusively establishes the line, and is binding both on them and all who claim under them.[16] On the issue of location of a boundary line a surveyor's determination thereof is not final.[17] When adjoining owners employ a surveyor to run the boundary between them not because they have had a dispute about it, but merely because they are ignorant of its exact location, such survey is not conclusive on the

[12]Clayton v. Feig, 179 Ill. 534, 54 N. E. 149; Vosburgh v. Teator, 32 N. Y. 561; Pittsburgh & L. A. I. Co. v. Lake Superior Iron Co., 118 Mich. 109, 76 N. W. 395; Glover v. Wright, 82 Ga. 114, 8 S. E. 452.

[13]Randleman v. Taylor, 94 Ark. 511, 127 S. W. 723, 140 Am. St. 141.

[14]Abbott v. Perkinson, 144 Ky. 495, 139 S. W. 745, Ann. Cas. 1913 A, 747.

[15]Watrous v. Morrison, 33 Fla. 261, 14 So. 805, 39 Am. St. 139.

[16]Main v. Killinger, 90 Ind. 165; Hobbs v. Cram, 22 N. H. (2 Fort.) 130.

[17]Cronin v. Gore, 38 Mich. 381.

parties, even though they acquiesce in it believing it to be correct.[18] Where the owners of adjoining lands employ a surveyor who runs out the line and marks it on the plat in their presence, as a boundary, after twenty years' corresponding possession, they are concluded.[19] The owners of adjoining lands are not bound by an erroneous survey made at their request, without knowledge of the error.[20] Acquiescence in an erroneous survey of lands for twelve years is conclusive upon a party who aided in the survey conformable to which the location was made; and to bind him one need not show that, with full knowledge of the mistake, he expressly agreed to abide by the location.[21] Where adjoining owners, whose division line is susceptible of exact location, have a survey made, which is afterwards discovered to be erroneous, the fact that both parties, having no previous opinion as to the location of the line, express themselves as satisfied with the survey, and acquiesce therein for five years, does not estop either of them from insisting on the true boundary.[22]

§ 565. **Acquiescence—Mistake—Estoppel.**—Under certain circumstances the acquiescence in a certain line for a long period of years will estop such party from claiming the true line as the boundary, but it is said, "Where there is an acquiescence in a wrong boundary when the true boundary may be ascertained by deed, it is treated, both in law and equity, as a mistake, and neither party is estopped from claiming to the true line. The definite boundary fixed in the grant must govern in all cases, and all parol evidence of an estoppel is incompetent to vary it. The boundary is considered definite and certain when by survey it can be made certain from the deed."[23]

[18]Pickett v. Nelson, 79 Wis. 9, 47 N. W. 936.

[19]Boyd v. Graves, 17 U. S. (4 Wheat.) 513, 4 L. ed. 628.

[20]Wesley v. Sargent, 38 Maine 315.

[21]Jackson v. M'Connell, 12 Wend. (N. Y.) 421.

[22]Sanford v. McDonald, 53 Hun. 263, 6 N. Y. S. 613, 25 N. Y. St. 721.

[23]Hartung v. Witte, 59 Wis. 285, 18 N. W. 175.

This must be considered to be a mistake of fact, that is, a mistake as to where the true line was, for it is said, "Mere mistake of law as to the effect of a given state of facts is not, as a general rule, sufficient basis for relief either in law or in equity."[24]

And it is said that, "While it may be regarded as well settled that the title to real estate can not be transferred by parol, yet it is a principle well established that the owners of adjoining tracts of land may, by parol agreement, settle and establish permanently a boundary line between their lands, which, when followed by possession according to the line so agreed upon, is binding and conclusive, not only upon them, but their grantees."[25]

The California court,[26] lays down the rule, "Agreements of this character are not subject to the objection that they are within the statute of frauds, because they are not considered as extending to the title. They do not operate as a conveyance so as to pass the title from one to the other, but proceed upon the theory that the true line of separation is in dispute, and to some extent unknown, and in such cases the agreement serves to fix the line to which the title of each extends."

§ 566. **Agreements under mistake as to facts.**—Where adjacent owners of land agree upon a boundary line under a mistaken knowledge of the facts, the agreement is not binding, but may be set aside by either party, when the mistake is discovered, unless there is some element of estoppel which prevents it. It is only when the true line is unknown, or is difficult of ascertainment, and the parties establish the line to settle a disputed question, as to the boundary, that the agreement is binding. In this case, held neither party is estopped

[24]Kitchen v. Chantland, 130 Iowa 618, 105 N. W. 367, 8 Ann. Cas. 81.

[25]Cutler v. Callison, 72 Ill. 113.

[26]Dierssen v. Nelson, 138 Cal. 394, 71 Pac. 456.

from disclaiming the line as agreed upon.[27] But it has been held that even though the parties are mistaken as to the true line and intended the agreed line to be the true line yet, having made the agreement and taken possession up to such agreed line, they will be estopped from disclaiming it.[28] Long acquiescence in the location of a boundary line, however, together with the acts and declarations of the parties treating the same as the true line will authorize the jury to infer an agreement, between the parties, establishing such boundary.[29]

§ 567. **Adverse possession under color of title.**—One who enters upon a tract of land when there is no adverse possession, a portion of which is uninclosed, claiming the whole under a deed describing the entire tract, will prevail in an action to recover the land as against one who enters subsequently upon the uninclosed part showing color of title merely.[30]

It was held in an Alabama case that: "When, after a dividing line between two adjacent tracts of land has been surveyed, each tract is sold to different parties, and each purchaser goes into possession believing the line so surveyed to be the true boundary line between the respective tracts, and he claims ownership to such line, such possession of each tract will be adverse and hostile up to such line, even though the division as established by the survey is erroneous.[31]

T and H, the owners of a fractional half section of land, in 1864, agreed upon an equal division of the tract and estab-

[27]Randleman v. Taylor, 94 Ark. 511, 127 S. W. 723, 140 Am. St. 141; Watrous v. Morrison, 33 Fla. 261, 14 So. 805, 39 Am. St. 139; Turner v. Baker, 64 Mo. 218, 27 Am. Rep. 226; Osteen v. Wynn, 131 Ga. 209, 62 S. E. 37, 127 Am. St. 212; Trussel v. Lewis, 13 Nebr. 415, 14 N. W. 155, 42 Am. Rep. 767.

[28]Purtle v. Bell, 225 Ill. 523, 80 N. E. 350.

[29]Turner v. Baker, 64 Mo. 218; Cavanaugh v. Jackson, 91 Cal. 580, 27 Pac. 931.

[30]Hicks v. Coleman, 25 Cal. 122, 85 Am. Dec. 103, 22 Am. St. 35, note.

[31]Hess v. Rudder, 117 Ala. 525, 23 So. 136, 67 Am. St. 182; Krause v. Nolte, 217 Ill. 298, 75 N. E. 362, 3 Ann. Cas. 1061, note.

lished a line upon which a hedge was set out, and fences erected and both parties cultivated up to and made improvements upon their respective tracts with reference to this line. Both parties sold and conveyed their respective interests in the land, the grantees having knowledge of the agreement. Held that the line thus established would be sustained, particularly in view of the fact that there was testimony tending to show that the action was barred.[32]

§ 568. **Agreement on line indefinite and uncertain.**—Where the line between two parties is indefinite and uncertain and they are both ignorant of the true line and it can not be found without considerable trouble, and they agree to a division line between them and fence and occupy their respective tracts up to that line, they will be estopped from disclaiming such line.[33] And it has been held that: "It is the policy of the law to give stability to such an agreement, as being the most satisfactory way of determining the true boundary, and tending to prevent litigation."[34]

§ 569. **Practical location of line.**—Parties who, by their acts, show that they have recognized a certain fence as the true line between their respective tracts and held to that fence claiming to own the land to the fence during a long period of time will be held to have established the line by a practical location thereof, and it has been said[35] that, "A practical location of a boundary between adjoining lots of land may be established by evidence, which shows an original consent, with acts and conduct based thereon, implying an acquiescence and ap-

[32]Trussel v. Lewis, 13 Nebr. 415, 14 N. W. 155, 42 Am. Rep. 767; French v. Pearce, 8 Conn. 439, 21 Am. Dec. 680.

[33]Sherman v. King, 71 Ark. 248, 72 S. W. 571; Tate v. Foshee, 117 Ind. 322, 20 N. E. 241; Cavanaugh v. Jackson, 91 Cal. 580, 27 Pac. 931; Purtle v. Bell, 225 Ill. 523, 80 N. E. 350.

[34]Cavanaugh v. Jackson, 91 Cal. 580, 27 Pac. 931; Galbraith v. Lunsford, 87 Tenn. 89, 9 S. W. 365, 1 L. R. A. 522; Lindley v. Johnson, 42 Wash. 257, 84 Pac. 822.

[35]Vauth v. Landis, 44 Hun. 626, 7 N. Y. St. 683.

probation, by the owners of such practical location." While it is generally held that an agreement between two adjoining owners establishing the boundary line between them made under a mistake as to the facts in connection with such line, will not be binding on the parties, yet, if such owners establish such line and occupy adversely up to such line for the statutory period, they will be bound thereby, and it is said: "Location of incorrect boundary line under mistake by one proprietor and acquiescence therein for the period required to give title, will estop him from denying its incorrectness, in the absence of an express agreement between the adjacent proprietors concerning the line, and although the proprietor claiming the benefit of the estoppel never inclosed his lands; especially when great injustice would be done the latter by its correction."[36] The principle of equitable estoppel is frequently asserted in boundary cases and is invoked against the party whose acts have led the other party to act to his injury. The rule is sometimes stated as follows: "When one of two innocent persons, that is, persons each guiltless of an intentional moral wrong—must suffer a loss, it must be borne by that one of them, who, by his conduct, acts, or omissions has rendered the injury possible."[37]

§ 570. **Estoppel by acts.**—Where the grantor of certain real estate showed the purchaser the wrong line, and was cognizant of his acting on that information, and stood silent while a house was being erected and money expended, he thereby directly led the purchaser into a line of conduct prejudicial to his interest and should not afterwards be heard alleging anything to the contrary. Such acts would constitute an "estoppel *in pais*."[38] Lines are frequently established be-

[36]Lindell v. McLaughlin, 30 Mo. 28, 77 Am. Dec. 593; Jackson v. McConnell, 19 Wend. (N. Y.) 175, 32 Am. Dec. 439.

[37]North River Bank v. Aymar, 3 Hill (N. Y.) 262, 1 L. R. A. 522, note.

[38]Rutherford v. Tracy, 48 Mo. 325, 8 Am. Rep. 104.

yond change because of the fact that one party or the other has, by his acts, placed himself beyond the power of himself or a court to change. This principle is called "Equitable estoppel." A slight variation in the facts will, however, change the view of the court to a contrary decision, as will be seen by the following: "Where two adjoining lots are sold A and B and the supposed boundary pointed out to which no objection is made by the purchasers, one of them is not estopped thereby from claiming to the true line of his lot, beyond the one thus pointed out unless at the time of the sale he knew where the true line was, and the other purchaser was induced to and did purchase in consequence of his silence or some acts by him done."[39]

Different courts have taken different views as to this matter of estoppel. In a Massachusetts case,[40] the court lays down the rule that: "A and B, owners of adjoining land, intending to establish the divisional line according to the true boundary, agreed by parol, on a line that did not conform to such boundary, and afterwards held possession according to such conventional line. B sold his land to C. Before the sale, A stated to C that the land which he, A, claimed was bounded by said conventional line between him and B and that he did not claim beyond that line. After the sale to C, he made improvements on the land next to such line with the knowledge of A, who was often present and pointed out said line, without expressing any dissent to C's proceedings or giving notice that he had any claim to said land; A afterwards disclaimed that said line was the true dividing line, and that C was in possession, as B had been, of a piece of land belonging to A. Held A was not estopped from claiming from C the strip of land." See other cases.[41]

[39]Titus v. Morse, 40 Maine 348, 63 Am. Dec. 665.

[40]Brewer v. Boston & W. R. Corp., 5 Metc. (Mass.) 478, 39 Am. Dec. 694.

[41]Evans v. Miller 58 Miss. 120, 38 Am. Rep. 313.

The rule seems to be pretty well established, however, in most of the states that where the owner of land points out the lines and corners, at the time of a sale of the land, he is estopped from thereafter denying such locations, and we find, the Iowa court saying: "When the owner points out the lines and corners to one who purchases, relying on the boundaries so designated, the vendor is estopped from denying such location of the lines.[42]

§ 571. **Agreements, compromises approved and encouraged.**—Where interested parties have, fairly and knowingly, without fraud or mistake, entered into an agreement whereby a certain line between them has been adopted and taken to be the true line and have occupied their respective lands to that line, they will be held to such agreement and the courts will approve the same. Some of the courts have used strong language relative to the approval of such agreements.[43] That court said: "This court has frequently passed on questions of boundary, and, as has been frequently cited, 'these settlements of boundary are common, beneficial, approved, and encouraged by the courts, and ought not to be disturbed, though it was afterwards shown that they had been erroneously settled. Convenience, policy, necessity, justice, all unite in favor of such a settlement.' While the large majority of cases passed upon in this state present questions of acquiescence, partition, compromise, and arbitration, still agreements of a recent date, where there was doubt, and whether the parties were right or wrong in their belief that the line they established and agreed upon as the boundary of their land was precisely where it ought to be, have been encouraged, favored, and upheld in a number of cases."

[42]Rowell v. Weinemann, 119 Iowa 256, 93 N. W. 279, 97 Am. St. 310.

[43]Levy v. Maddox, 81 Tex. 210, 16 S. W. 877.

§ 572. **Room for controversy and disagreement over line essential in most jurisdictions.**—Most jurisdictions hold that in order for the adjacent owners to make a binding oral agreement as to the boundary line between them there must be room for an honest disagreement between them as to the true location of the line.[44] That court held that: "Where there is room for controversy as to the location of a dividing line, the conterminous proprietors * * may orally agree upon the line; and if the agreement is accompanied by possession to the agreed line, or is otherwise duly executed, such agreement will be valid and binding, and the line thus defined will thereafter control their deeds. However, it is not necessary that possession under the agreed line should be had for twenty years, to give validity to the agreement, though the agreement derives additional weight from long acquiescence. A parol agreement between the adjoining land owners to fix a boundary line between their respective tracts, theretofore unascertained, uncertain or disputed, is not within the operation of the statute of frauds, for the reason that no estate is created. When a boundary line is established by consent the conterminous proprietors hold up to it by virtue of their title deeds, and not by virtue of a parol transfer of title."

The principle is well settled in Missouri and that court has said: "It is * * * well settled in this state that where there is a dispute as to the location of the true boundary line between two adjoining proprietors, or where the line is uncertain and they are ignorant of its true location, and, by agreement, they fix upon a permanent boundary line and take possession in pursuance thereof, then the agreement is valid and binding on the parties thereto and those claiming under them."[45]

And the Michigan court says: "Where disputed boundary

[44]Osteen v. Wynn, 131 Ga. 209, 62 S. E. 37, 127 Am. St. 212.

[45]Reynolds v. Hood, 209 Mo. 611, 108 S. W. 86.

lines have been established by express agreement, and the parties have recognized them and expended large sums under the agreement, they will be upheld, although title by adverse possession has not been acquired. The application of the doctrine of estoppel as to voluntary adjustment of boundaries between contiguous lands is not within the statute of frauds."[46] In this case, the party in whose favor the doctrine of estoppel was invoked had expended over one hundred thousand dollars on the strength of an agreement made with adjacent owners dividing their rights, as riparian owners, in the bed of a non-navigable lake and fixing the boundaries between their lands. See other cases.[47]

[46]Pittsburgh & L. A. I. Co. v. Lake Superior Iron Co., 118 Mich. 109, 76 N. W. 395.

[47]Jones v. Pashby, 67 Mich. 459, 35 N. W. 152, 11 Am. St. 589.

CHAPTER XXII

SURVEYORS—LIABILITIES—EXPERTS—RIGHTS

Sec.
573. Generally.
574. Liability of surveyors—Error in fixing boundary.
575. Degree of care required of surveyor.
576. Private and county surveyor alike liable for negligence.
577. Not liable for excess of land parted off—Liable for fees paid him.
578. Surveyors as experts.
579. Libel or slander of surveyor.

§ 573. **Generally.**—In his employment by private parties, the surveyor occupies the position of a professional man and he must exercise that degree of care which a skilled surveyor of ordinary prudence would exercise under similar circumstances and for a failure to so exercise that degree of care he will be liable in damages, to the extent of the injury, to those who employed him. This is so whether he be acting as a public official or in his private capacity.

The surveyor is frequently called upon as a witness in the trial of causes in court. The question naturally arises can he testify as an expert? The courts have passed upon this question under various circumstances, and it has been held by the courts generally that the surveyor may, under certain circumstances, testify as an expert witness. We quote herein from some of the more important cases on liabilities of a surveyor and his position as an expert.

§ 574. **Liability of surveyors—Error in fixing boundary.**—Where the owner of the land, at the time of having it surveyed, notified the surveyor of the kind of building he was going to place on the lot, the surveyor was held liable for all damages

arising from a mistaken location of the building, caused by an erroneous survey.[1] In this case, the court also holds that where the surveyor was notified of the kind of building to be built on the lot, he cannot, as a defense, plead that the survey was not guaranteed, and that for a higher price it was the custom of surveyors to guarantee their work. This subject has been considered in several carefully adjudicated cases. From an examination of the adjudicated cases, it would appear that a surveyor or engineer is liable for negligently fixing the boundary line of one employing him, and is liable for the damages naturally following the work consistent with the knowledge given to him of the use to which the lot was to be put.[2]

§ 575. **Degree of care required of surveyor.**—In a Connecticut case,[3] the court says, in part: "The gist of the plaintiff's cause of action," against a civil engineer for damages for negligence in locating one of the boundary lines of the plaintiff's land, "was the negligence of the defendant in his employment as civil engineer. Having accepted that service from the plaintiff, the defendant, as the jury were properly instructed, was bound to exercise that degree of care which a skilled civil engineer of ordinary prudence would have exercised under similar circumstances."

§ 576. **Private and county surveyor alike liable for negligence.**—In a Michigan case,[4] the action was by the commissioner of highways against the defendant, who was county surveyor. The latter was employed by such official to locate and mark the east quarter line of a designated section upon which a highway was about to be laid out. The defendant entered upon the survey, but so negligently did he perform the

[1]Taft v. Rutherford, 66 Wash. 256, 119 Pac. 740, 38 L. R. A. (N. S.) 1043, Ann. Cas. 1913 C, 522.

[2]Ferrie v. Sperry, 85 Conn. 337, 82 Atl. 577; Highway Comrs. v Beebe, 55 Mich. 137, 20 N. W. 826; McCarty v. Bauer, 3 Kans. 237.

[3]Ferrie v. Sperry, 85 Conn. 337, 82 Atl. 577.

[4]Highway Coms. v. Beebe, 55 Mich. 137, 20 N. W. 826.

services that it was necessary to have the line resurveyed. Before such resurvey was made, the public authorities had constructed considerable new road on the line so located. This new road was not on the correct line and a large amount of work had to be abandoned. As a result, the town suffered large damages. The action was brought to recover such damages of the surveyor. The defendant demurred to the complaint. The court, in overruling the demurrer says: "We do not think the demurrer is well taken. There is no question made that the plaintiff has the right to maintain the suit. The declaration avers the laying out and establishing the highway" * * *, the employment of defendant to survey and mark the line; that the defendant was in duty bound to perform the work properly and skillfully; that the defendant failed to so perform such work, etc.; that as a result damages accrued to the plaintiff. The mention of the defendant as the county surveyor did not affect the situation. "The duty averred was that arising from the employment of the defendant, and not from the office he held; but under either he would be required to do the work undertaken properly and correctly." * * * "Whether he was a professional or official surveyor, or represented himself as such, his undertaking was that he should bring to the work the necessary knowledge and skill to perform the same properly and correctly; and if he failed so to do, and the employer sustained damages in consequence of such failure, the plaintiff will be entitled to recover."[5]

The general rule is that a professional man must exercise that degree of care which a skilled man of his profession, using ordinary prudence, would exercise, under like circumstances. In a Kansas case the court says: "Reasonable care and skill is the measure of obligation created by the implied contract of a surgeon, lawyer or any other professional practitioner."[6] But Ruling Case Law says: "Yet a person under-

[5]Highway Coms. v. Beebe, 55 Mich. 137, 20 N. W. 826.

[6]Branner v. Stormont, 9 Kans. 51.

taking to make a survey does not insure the correctness of his work, nor is absolute correctness the test of the amount of skill the law requires. Reasonable care, honesty and a reasonable amount of skill are all he is bound to bring to the discharge of his duties."[7]

§ 577. **Not liable for excess of land parted off—Liable for fees paid him.**—A county surveyor, making a survey, under an order of the court, made a mistake in surveying the land, so that thirty acres more than the one hundred and twenty-five acres demanded was set off to A from B's land. Held, in a suit brought by B against the surveyor and the sureties on his official bond, that B could recover back the fees paid by him for the survey, but not the value of the thirty acres as that might be recovered from A.[8] These few citations will be ample to aid the professions in deciding as to the liabilities of the surveyor in a given case.

§ 578. **Surveyors as experts.**—A surveyor may testify as an expert and give his opinion whether piles of stones and marks on trees were monuments of boundaries.[9] A surveyor may testify he found the corners in dispute to be according to the original government survey.[10] Surveyor may not testify that in his opinion a corner had been located by a survey made forty-three years before he surveyed the land.[11] Parol evidence of a surveyor admissible to show the meaning of certain cross lines on a map.[12] The opinion given by a surveyor formed on an inspection of marks on trees, as to the boundaries of lots, is inadmissible, though he has since died.[13] It may

[7]4 Ruling Case Law 77; Taft v. Rutherford, 66 Wash. 256, 119 Pac. 740, 38 L. R. A. (N. S.) 1043, Ann. Cas. 1913 C, 522.

[8]State v. Keller, 11 Lea 399.

[9]Davis v. Mason, 21 Mass. (4 Pick) 156; Knox v. Clark, 123 Mass. 216.

[10]Hockmoth v. Des Grand Champs, 71 Mich. 520, 39 N. W 737.

[11]Burt v. Busch, 82 Mich. 506, 46 N. W. 790.

[12]Campbell v. Wood, 116 Mo. 196, 22 S. W. 796.

[13]Wallace v. Goodall, 18 N. H. 439.

be proved by a surveyor that the line claimed by plaintiff is necessary to give the quantity of land called for in the deed.[14] A surveyor may testify that in his opinion, the marks on trees along the north side of a boundary line were placed on the northeast side of the trees, instead of the south side, probably for the reason that they would be there better protected from the sun.[15] A question to a surveyor as to whether in laying down old grants, it was customary to give the course of streams accurately, where they were not crossings or a terminal, is admissible to explain discrepancies between the description and natural objects.[16] A practical surveyor may testify whether, in his opinion, certain marks on trees, or other marks on the ground, were intended as monuments of boundaries.[17] In trespass, the field-notes of the survey, as described in a deed admitted in evidence, did not close. It appeared on the face of the deed that the conveyancer, in copying the field-notes, mistook for a cipher the character ordinarily used to denote degrees, and wrote "N. 40 W. 194 vs." instead of "N. 4° W. 194 vs." Held that the testimony of a surveyor was admissible to show that reading the call "N. 4° W. 194 vs." would close the lines and give the quantity called for in the deed.[18] Thus the court applied the ordinary rule of allowing parol evidence to explain a latent ambiguity and the surveyor testified as an expert, applying his professional skill and knowledge in giving his answer.

§ 579. **Libel or slander of surveyor.**—The law pertaining to libelous things written or slanderous remarks made of a surveyor in his professional capacity is practically the same as in other professions. As to whether the particular remark

[14]Ratcliffe v. Gray, 42 N. Y. (3 Keys) 510, 4 Abb. Dec. 4.

[15]Dugger v. McKesson, 100 N. Car. 1, 6 S. E. 746.

[16]Dugger v. McKesson, 100 N. Car. 1, 6 S. E. 746.

[17]Northumerland Coal Co. v. Clement, 95 Pa. 126.

[18]Coffey v. Hendricks, 66 Tex. 676, 2 S. W. 47.

made or written about a surveyor or other professional person is actionable would depend on the circumstances and conditions under which it was made. "It is not necessary to descend to vulgar abuse, or to make specific charges of crime, in order to expose one to hatred, contempt, or ridicule, or to injure him in his business or occupation," we are told.[19] In the Cole case it was held libelous per se to write of and concerning the plaintiff, a minister of the gospel, an applicant for a pulpit, "I would not have anything to do with him or touch him with a ten-foot pole." If a written statement as ordinarily used and understood would tend to expose one "to hatred, contempt, ridicule, or obloquy, or which shall cause or tend to cause any person to be shunned or avoided or which shall have a tendency to injure any person, corporation, or association of persons in his or their business or occupation" it would be libelous.[20] The same rule would apply to a surveyor as was applied to the clergyman in the case cited, and, if the libelous writing or slanderous statements tend to injure him in his profession, an action for damage would lie.

[19]Cole v. Millspaugh, 111 Minn. 159, 126 N. W. 626, 28 L. R. A. (N. S.) 152, 137 Am. St. 546, 20 Ann. Cas. 717.

[20]Cole v. Millspaugh, 111 Minn. 159, 126 N. W. 626, 28 L. R. A. (N. S.) 152, 137 Am. St. 546, 20 Ann. Cas. 717.

CHAPTER XXIII

PLATS AND PLATTING LANDS

Sec.		Sec.	
580.	Generally.	583.	Evidence.
581.	Plat must be made and acknowledged by owner of lands.	584.	Owners of lots in platted lands have easements in streets.
582.	Estoppel.		

§ 580. **Generally.**—An important branch of surveying is that of platting or subdividing land into city or town lots. Much that is applicable to the survey of farm lands applies equally to the subdivision of lands into town lots. The essentials of such subdivision work are: First; A well defined boundary of the tract to be platted, with the corners carefully marked by permanent monuments to which reference should be made on the plat. The plat should exactly fit the tract of land. Second; A careful survey of such tract into streets, blocks, lots and other designations, and the placing of stone or iron monuments at the corners of all blocks, and wooden or iron stakes at the corners of all lots. Third; The platting of the subdivision on paper, showing all blocks, lots, streets, alleys, parks, waters, monuments, size of lots, widths of streets and all other necessary and convenient information to enable future surveyors to retrace the lines accurately. Fourth; The certificate of the surveyor appended thereto showing the making of a proper survey and plat. The plat should then be executed and acknowledged by the proprietor of the property platted. Fifth; The plat should then be recorded in the office of the register of deeds of the county where the land is situated or in such other place as the statutes of the state re-

quire. Care should be taken to avoid all errors to the end that all proceedings should be legal. It must be remembered that the title to property and other rights are involved in the proceeding. Most dedications of land for streets, alleys, parks, squares, and frequently school and church sites, are made by designating such on the plat.

§ 581. **Plat must be made and acknowledged by owner of lands.**—It is required in most jurisdictions, if not all, that the proprietor of the land must make and acknowledge the plat,[1] and a plat not acknowledged is not entitled to be recorded.[2] A plat made by an administrator, which lays out no blocks, lots, or streets, does not subdivide property into lots, and not being acknowledged, can not be made a basis of statutory dedication.[3] Under the laws of Michigan, the acknowledgment of the plat by the proprietor is essential to a dedication of such streets, and without it a plat has no force in itself for any purpose.[4] And a map of an addition of record in the office of the recorder is not inadmissible in evidence because not acknowledged.[5] However, the rule is that an acknowledged plat found in the office of the register of deeds is admissible in evidence.[6] An instance of a defective acknowledgment of a plat may be found in Baker v. St. Paul.[7] Held not entitled to record, and that, though actually recorded, it did not operate as a dedication of the streets on it to the public, unless there was an acceptance by the public. And it is almost universally held that a plat not executed and acknowledged by the proprietor of the land is invalid.[8] But where the owner of the land plats it properly as an addition, has plat recorded, and the city opens the streets and works them for several years,

[1]Armstrong v. Topeka, 36 Kans. 432, 13 Pac. 843.
[2]Allen v. Vincennes, 25 Ind. 531.
[3]Detroit v. Detroit & M. R. Co., 23 Mich. 173.
[4]Burton v. Martz, 38 Mich. 761.
[5]Colton Land & Water Co. v. Swartz, 99 Cal. 278, 33 Pac. 878.
[6]Allen v. Vincennes, 25 Ind. 531.
[7]Baker v. St. Paul, 8 Minn. 491 (Gil. 436.)
[8]Thomas v. Eckard, 88 Ill. 593.

it is immaterial, so far as a dedication is concerned, that the plat was not properly acknowledged.[9] And the plat must be properly acknowledged to work a dedication to the public.[10] Still a deed referring to a plat, unacknowledged and unrecorded is valid.[11] The owner laid out a town site upon a piece of land; filed the plat thereof in the office of the register of deeds; all blocks, except two were numbered and were subdivided into lots. One of the blocks, not subdivided or numbered, was marked "Public Square," the other being marked "Seminary Square." The former was used as a park by the city; the latter remained vacant until all of the lots had been sold. Held that "Seminary Square" belonged to the public for seminary purposes.[12] A plat of a tract of land, not acknowledged, was left with the register of deeds, but it was held that it did not pass title to the city of land designated thereon as streets by dedication.[13] An owner of a lot on a plat made and acknowledged but not recorded, sold said lot according to said plat. Held the owner would be estopped from denying to lot purchasers the use of the streets marked on said plat.[14] Where an owner of a town site platted same, showing certain lots thereon designated for church purposes, deeded said lots to a church but the deed did not contain any provision therein which required the lots to be so exclusively used. Held that the owners of the lots adjacent to the church lots did not acquire such an easement as would prevent use of such lots for other than church purposes.[15] Where land was platted into streets, blocks and lots, which was sold with refer-

[9]Powell v. Gilman, 38 Ill. App. 611; Shea v. Ottumwa, 67 Iowa 39, 24 N. W. 582.

[10]Brooks v. Topeka, 34 Kans. 277, 8 Pac. 392.

[11]Johnstone v. Scott, 11 Mich. 232.

[12]Board of Comrs. of Miami Co. v. Wilgus, 42 Kans. 457, 22 Pac. 615.

[13]Gardiner v. Tisdale, 2 Wis. 153, 60 Am. Dec. 407.

[14]Donohoo v. Murray, 62 Wis. 100, 22 N. W. 167.

[15]Chapman v. Gordon, 29 Ga. 250.

ence thereto, the purchasers acquired the right to have the adjacent streets kept open.[16] Where a land owner lays out his land and makes a map showing the lots and streets, and thereafter conveys lots with reference to such map or plat, such conveyance confers upon the grantee, as against the grantor, the right to have the streets open at both ends, although the streets were never accepted by the public.[17] Where map accompanying a grant is incorrect as to lines of latitude, it may be located by a reference to natural objects.[18] Where there is a conflict between field-notes and the original monuments, the field-notes must yield to the monuments.[19] The lines actually run control over maps, plats, or field-notes.[20]

§ 582. **Estoppel.**—Where one plats a town site and leaves a strip one hundred feet wide running through the town, which he designates on the plat as "M. St.", and he and his grantors permit the public to use such strip as a street for ten years or more, he is estopped from claiming that the entire one hundred feet was dedicated, regardless of a general statement on the plat that "all the streets are sixty-six feet wide."[21]

§ 583. **Evidence.**—Copies of an official map of a survey deposited in the surveyor-general's office are held to be the best evidence as to such survey and parol evidence will not be received that a private survey conforms to the original survey without producing a copy of the original survey also.[22]

[16]Field v. Barling, 149 Ill. 556, 37 N. E. 850, 24 L. R. A. 406, 41 Am. St. 311.

[17]Taylor v. Hopper, 62 N. Y. 649.

[18]United States v. Sutter, (21 How.) 170, 16 L. ed. 119.

[19]McClintock v. Rogers, 11 Ill. 279; Henry v. Richards, 52 Cal. 496; Murphy v. Riemenschneider, 104 Ill. 520; Turnbull v. Schroeder, 29 Minn. 49, 11 N. W. 147; Woods v. West, 40 Nebr. 307, 58 N. W. 938; Hall v. Davis, 36 N. H. 569; Marsh v. Mitchell, 25 Wis. 706.

[20]Whiting v. Gardner, 80 Cal. 78, 22 Pac. 71; Smith v. Boone, 84 Tex. 526, 19 S. W. 702.

[21]Smith v. Montgomery, 3 Idaho 472, 31 Pac. 812.

[22]Surget v. Little, 13 (5 Smed & M.) Miss. 319.

§ 584. **Owners of lots in platted lands have easements in streets.**—It is the law that owners of lots in a plat have an easement in the streets, parks and public grounds shown thereon and the proprietor can not close such streets without the assent of such owner. Their interest is founded on a consideration so to speak. They are a part of the benefits purchased and paid for at the time of the purchase of the lots. The courts have frequently passed on this question, and[23] we find the Wisconsin court saying: "When land is so divided into lots, and a plat made, and the lots and streets marked thereon, and the owner sells a lot so designated in reference to a street adjoining, also designated on the plat, and for a consideration evidently affected by its situation as a lot on a public street, he is estopped from depriving the purchaser of the use of the street. He, at least, has an easement in such street to be enjoyed in connection with the lot, of which the grantor can not deprive him, whether the public have an easement therein as a public highway or not." Other courts hold to the same effect.[24] The latter and numerous other cases hold: "If the parties to a deed bound the land conveyed upon a street, they are, in an action concerning the boundary of the land, estopped to deny the existence of the street," and where the fact "that the lot fronted upon two ways, which would always be kept open, probably entered much into the consideration of the purchase, (they) could not be shut, without a right to damages to the grantee or his assignee."[25]

[23]Donohoo v. Murray, 62 Wis. 100, 22 N. W. 167.

[24]Weisbrod v. Chicago & N. W. Ry. Co., 21 Wis. 602; Gardiner v. Tisdale, 2 Wis. 153, 60 Am. Dec. 407; Kimball v. Kenosha, 4 Wis. 321; Bigelow, Estoppel, 306; Parker v. Smith, 17 Mass. 413, 9 Am. Dec. 157; White v. Smith, 37 Mich. 291; Fox. v. Union Sugar Refinery, 109 Mass. 292.

[25]Bartlett v. Bangor, 67 Maine 460; Bissell v. New York Cent. R. Co., 23 N. Y. 61; Tallmadge v. East River Bank, 26 N. Y. 105; Fisher v. Beard, 32 Iowa 346. Ante Ch. XX.

CHAPTER XXIV

ADVERSE POSSESSION

Sec.
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587. What constitutes adverse possession.
588. Inferences from acts of party.
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590. Possession—Actual and constructive.
591. Visible and notorious possession.
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593. Occupying to boundary line —Agreements, etc.
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596. Tacking possessions.

§ 585. **Generally.**—It is not the intention of the author to go into the question of adverse possession extensively but to briefly state the main points associated with such possession and to deal with that question insofar as it may be related to lines and boundaries.

The author has heretofore treated of ancient fences[1] and long established lines as evidence of original corners and lines. So also has reference been made to agreements between adjoining owners fixing the line between them and its binding effect on the parties.[2]

The object of this chapter is to give the professions, briefly, an idea of the law insofar as adverse possession affects title to property, and to impress on the surveyor the importance of possession as bearing on evidence of original boundary lines and corners. It is not expected that the surveyor will attempt

[1]Ante § 410. [2]Ante Ch. XXI.

to advise what is or is not adverse possession and when and how that possession may ripen into a title.

The surveyor should remember that courts are loathe to change boundaries long established and marked by ancient fences. The presumption is that if such fences have been built many years and maintained in substantially the same place during all those years that they were built on the original lines.[3] Still, if the original monuments can be found and identified, they must govern as to the true line. Nevertheless, if adjoining owners openly occupy up to a certain fence and claim title thereto, to the exclusion of all the world during the statutory period, they will be held to have title up to such old fence regardless of the true line. As to what is adverse possession within the meaning of the law, authorities will be cited in the following pages.

The text writers and the courts of the various jurisdictions declare that, in order to be adverse, the possession must be actual, visible, exclusive, hostile and extend over the time necessary to create a bar under the statutes of limitations of the particular jurisdiction. Should any of these conditions be lacking, the possession would not be adverse so as to ripen into a title. As to when these conditions exist is a question of fact to be determined as any other fact. This is not always an easy question, as there are various elements which enter into the fact.

§ 586. **Must have possession of the thing.**—In case the owner of the surface seeks to establish title to a mine by adverse possession, in opposition to his deed, he must prove possession of the mine as such, independently of his possession of the surface.[4] A possession of land which is notice of the possessor's claim of title must be an actual, visible occupancy and improvement of the same. Fencing, pasturing cattle, cut-

[3] Ante § 410.

[4] Caldwell v. Copeland, 37 Pa. 427, 78 Am. Dec. 436.

ting and selling timber are not sufficient.[5] Gathering seaweed on land is evidence of adverse possession.[6] There must be a real and substantial inclosure, an actual occupancy, which is definite, positive and notorious, to constitute adverse possession.[7] Going upon the land occasionally and cutting down trees, deadening timber, and fencing in a cow pen are not sufficient to prove adverse possession.[8] Possession must be hostile, continuous and exclusive and for purpose of residence or cultivation. A mere annual entry upon another's land, to cut timber, to feed cattle, and hunt or fish can not give title.[9] And it has been decided that if one, by mistake, inclose the land of another, and claim it as his own, to certain fixed monuments or boundaries, his actual and uninterrupted possession for the statutory period will work a disseisin, and his title will be perfect.[10] In the case just cited, the party built his fence on a line run by a surveyor and occupied the land up to that fence and claimed it as his own. As a matter of fact, it was found thereafter that the surveyor was mistaken as to about fifteen feet.[11] Acts of notoriety, such as, building a fence around the land, entering upon it and making improvements thereon, and the payment of taxes on the land, are sufficient to constitute adverse possession.[12] Evidence that a person took possession of land "about" May 1, 1866, and remained in possession until "about" May 1, 1886, is not sufficient to prove title by adverse possession, the statute of limitation being

[5]Union College v. Wheeler, 59 Barb. 585.

[6]East Hampton v. Kirk, 84 N. Y. 215, 38 Am. Rep. 505.

[7]Jackson v. Schoonmaker, 2 Johns. (N. Y.) 229.

[8]Denham v. Holeman, 26 Ga. 182, 71 Am. Dec. 198.

[9]Wheeler v. Winn, 53 Pa. 122, 91 Am. Dec. 186.

[10]Tex. v. Pflug, 24 Nebr. 666, 39 N. W. 839, 8 Am. St. 231.

[11]Levy v. Yerga, 25 Nebr. 764, 41 N. W. 773, 13 Am. St. 525.

[12]Fourtelotte v. Pearce, 27 Nebr. 57, 42 N. W. 915; Ellicott v. Pearl, 10 Pet. (U. S.) 412, 9 L. ed. 475; Alden v. Gilmore, 13 Maine 178; Poignard v. Smith, 6 Pick. 172.

twenty years.[13] A title by adverse possession once acquired is not lost by an interruption of the possession unless by some other adverse possession for the required period.[14]

§ 587. **What constitutes adverse possession?**—It is held in Michigan[15] Morse, J, that, "It is not necessary that the occupation should be such that a mere stranger passing by the land would know that someone was asserting title to and dominion over it. It is not necessary that the land be cleared or fenced, or any building be placed upon it."[16] In the Murray case, the question up was as to what constitutes adverse possession of a wood lot under color of title. In that case the court further says: "If Bryce entered upon the land under his deed from Kitten, and used it thereafter as a wood lot appurtenant to his farm in the usual and ordinary way, and exercised such acts of ownership over it as were necessary to enjoy such usual and ordinary use of a wood lot, such acts, being continued and uninterrupted, would amount to actual possession, and such possession, being under color of title and a claim of right, and exclusive, held so openly and notoriously that the community understood and recognized his claim of ownership, would be adverse. Such adverse possession, continued for ten years without interruption, would bar the claim of the plaintiff."[17]

Possession must be open, continuous and notorious.[18] Mere entry upon land, without open, continuous and adverse possession is not sufficient to stop the running of the statute.[19] In an Iowa case[20] the jury found that the acts of possession

[13]Allis v. Field, 89 Wis. 327, 62 N. W. 85.

[14]Dean v. Goddard, 55 Minn. 290, 56 N. W. 1060.

[15]Murray v. Hudson, 65 Mich. 670, 32 N. W. 889.

[16]Ellicott v. Pearl, 10 Pet. 412, 9 L. ed. 475; Ewing v. Burnett, McLean 266, affd. 11 Pet. 41, 9 L. ed. 624; Langworthy v. Myers, 4 Iowa, 18; Booth v. Small, 25 Iowa 177; Brooks v. Bruyn, 24 Ill. 372; Davis v. Easley, 13 Ill. 192.

[17]Murray v. Hudson, 65 Mich. 670, 32 N. W. 889.

[18]Mauldin v. Cox, 67 Cal. 387, 7 Pac. 804.

[19]Donovan v. Bissell, 53 Mich. 462, 19 N. W. 146.

[20]Brown v. Rose, 55 Iowa 734, 7 N. W. 136.

were: "Digging and hunting for a corner, and bounding lines, and driving cattle into the land, and employing a man to break the land in the following spring," and the court held there was not sufficient evidence to bar the plaintiff's right of action.

§ 588. **Inferences from acts of party.**—The intent to claim by adverse possession may be inferred from the nature of the occupancy. They must be hostile. Such hostility may be manifested by acts of possession and use of the premises, plainly visible, actual, open, and continuous, such as, using the premises for many years as a lumber yard, building a barn and shed thereon in 1866, or 1867, and keeping the same on the premises until they burned down in 1884, and keeping a large number of horses on the premises and in stables for many years; also storing machinery, lamp posts, castings, and other personal property, putting a large sign on the lot, with notice thereon that it was for rent.[21] It is said in a Pennsylvania case[22] that the "adverse possessor 'must keep his flag flying.'" Yet it is no less essential that the actual owner should reasonably keep his own banner unfurled. The law which he is presumed to know, is a continual warning to him that if he shall allow his lands to remain unoccupied, unused, unimproved and uncultivated, by adverse possession for a long period of time, fixed by law, he may be disseised thereof, and deemed to have acquiesced in the adverse possession of the adversary.[23]

§ 589. **Who may acquire title by adverse possession?**—The cases are agreed that any person or corporation may acquire title by adverse possession.[24] Possession is adverse when

[21]Dean v. Goddard, 55 Minn. 290, 56 N. W. 1060.

[22]Stephens v. Leach, 19 Pa. 262.

[23]Dean v. Goddard, 55 Minn. 290, 56 N. W. 1060.

[24]Giddens v. Mobley, 37 La. Ann. 900; Hatch v. Lusignan, 117 Wis. 428, 94 N. W. 332.

it is actual, notorious, continuous and exclusive.[25] Title of this kind with various limitations may be acquired against infants,[26] married women,[27] private corporations,[28] and public corporations.[29] In the latter case it is held that public corporations may secure title by adverse possession. A foreign corporation, it is said,[30] may acquire title by adverse possession. So also may a state get title in that manner.[31] But the statute does not run against the state.[32] Title may be secured by an alien by adverse possession.[33] However, see other cases.[34]

§ 590. **Possession—Actual and constructive.**—The disseisor must be in actual possession of the land to disseise the owner and gain title.[35] Such possession may be shown by a variety of acts.[36] Some acts held to be evidence of adverse possession are: Residence on the land,[37] the erection of buildings and other structures,[38] inclosure of land with fence.[39] But none of these are necessary.[40] The statutes in some jurisdictions may control the question of possession and lay down certain requirements such as residence,[41] or cultivation of the

[25]Anderson v. Burnham, 52 Kans. 454, 34 Pac. 1056; Claflin Co. v. Middlesex Banking Co., 113 Fed. 958; Owsley v. Matson, 156 Cal. 401, 104 Pac. 983; Wilder v. Aurora & C. Traction Co., 216 Ill. 493, 75 N. E. 194.

[26]Killebrew v. Mauldin, 145 Ala. 654, 39 So. 575.

[27]Clark v. Gilbert, 39 Conn. 94.

[28]Montecito Valley Water Co. v. Santa Barbara, 144 Cal. 578, 77 Pac. 1113.

[29]Victoria v. Victoria Co. (Tex. Civ. App.), 94 S. W. 368.

[30]St. Paul v. Chicago R. & C. Co., 45 Minn. 387, 48 N. W. 17.

[31]Eldridge v. Binghamton, 120 N. Y. 309, 24 N. E. 462.

[32]Rhode Island v. Massachusetts, 4 How. (U. S.) 591, 11 L. ed. 1116.

[33]Overing v. Russell, 32 Barb. (N. Y.) 263.

[34]Leary v. Leary, 50 How. Prac. (N. Y.) 122.

[35]Zirngibl v. Calumet & C. Dock Co., 157 Ill. 430, 42 N. E. 431; Ward v. Cochran, 150 U. S. 597.

[36]Eastern Railway Co. v. Allen, 135 Mass. 13.

[37]Hughes v. Pickering, 14 Pa. St. 297.

[38]Goltermann v. Schiermeyer, 111 Mo. 404, 19 S. W. 484, 20 S. W. 161.

[39]Illinois Cent. Ry. Co. v. Houghton, 126 Ill. 233, 18 N. E. 301, 1 L. R. A. 213, 9 Am. St. 581.

[40]Henry v. Henry, 122 Mich. 6, 80 N. W. 800.

[41]Stumpf v. Osterhage, 94 Ill. 115.

land.[42] But the circumstances should be taken into consideration. In a Kansas case,[43] the claimant plowed twenty twelve-inch furrows around the land, built a house and stable thereon, planted 300 fruit trees, herded his stock thereon and remained in undisputed possession and this was held adverse. Such claimant must do the particular acts on the land with the intention of disseising the rightful owner.[44] The owner of surface must work mines to gain title by adverse possession. It is not sufficient to possess the surface of the land.[45]

In order to recover one must show continuous, actual, visible, notorious, exclusive and adverse possession of the lands; he must actually hold the land as his own; and it can not be held jointly with owner; nor with permission of the owner.[46] If possession ripens into a title it is not lost by any repossession of the original owner, unless that possession is held adversely for the statutory period, and such title is a fee simple one.[47]

Where adverse occupant holds land without color of title, he can secure title to such land as is in his actual occupancy only.[48] But constructive possession under color of title may give an adverse holding of more than is actually occupied.[49] It seems that the reason for this is that if entry be made without color of title, there is no notice to the owner of claim of title.[50] Color of title is that which has an appearance of title but in fact is not a title at all.[51]

[42]McFarlane v. Kerr, 10 Bosw. (N. Y.) 249.

[43]Anderson v. Burnham, 52 Kans. 454, 34 Pac. 1056.

[44]Ewing v. Burnett, 1 McLean 266, affd. 11 Pet. (U. S.) 41, 9 L. ed. 624.

[45]Algonquin Coal Co. v. Northern Coal & Iron Co., 162 Pa. 114, 29 Atl. 402.

[46]Smith v. Hitchcock, 38 Nebr. 104, 56 N. W. 791; Harvey v. Tyler, 2 Wall. (U. S.) 328, 17 L. ed. 871; Allen v. Allen, 58 Wis. 202, 16 N W. 610.

[47]Dean v. Goddard, 55 Minn. 290, 56 N. W. 1060.

[48]Coburn v. Hollis, 3 Metc. (Mass.) 125.

[49]Noyes v. Hefternan, 153 Ill. 339, 38 N. E. 571.

[50]Barber v. Robinson, 78 Minn. 193, 80 N. W. 968.

[51]Wright v. Mattison, 18 How. (U. S.) 50, 15 L. ed. 280.

§ 591. **Visible and notorious possession.**—In order to secure title by adverse possession, the owner of property must have had actual notice of the possession, or the possession of the disseisor must have been visible and notorious.[52] What is visible and notorious possession depends on the facts of each case.[53] Fencing the lands,[54] cultivation,[55] and erection of buildings,[56] have been held to be such acts. The possession must not be clandestine.[57]

§ 592. **Possession must be hostile.**—A possession subordinate to the owner can not ripen into title.[58] But such possession may thereafter become adverse and ripen into a title.[59] "Hostile," in this sense does not imply ill will toward the owner, but means an occupant who holds as an owner and against all other claims.[60] In order to be hostile, the party must claim the land as a matter of right to the exclusion of others.[61] What is adverse or hostile possession is a question of fact.[62] Suing the owner for trespass by one in possession is evidence of adverse possession.[63] Declarations by the adverse holder are evidence of such possession.[64] Such declarations were that possessor was not holding as a tenant of the alleged owner.[65] Party entering by consent of owner may thereafter disclaim holding by such consent and such disclaimer must be brought

[52]Van Matre v. Swank, 147 Wis. 93, 131 N. W. 982, 132 N. W. 904.

[53]Lake Shore & M. S. Ry. Co. v. Johnson, 157 Mich. 115, 121 N. W. 267.

[54]Cutter v. Cambridge, 6 Allen (Mass.) 20.

[55]Wolf v. Ament's Executors, 1 Grant, Cas. (Pa.) 150.

[56]Foulke v. Bond, 41 N. J. L. 527.

[57]Edmondson v. Anniston City Land Co., 128 Ala. 589, 29 So. 596.

[58]Toney v. Knapp, 142 Mich. 652, 106 N. W. 552.

[59]Toney v. Knapp, 142 Mich. 652, 106 N. W. 552.

[60]Ballard v. Hansen, 33 Nebr. 861, 51 N. W. 295.

[61]Kingston v. Guck, 155 Mich. 264, 118 N. W. 967.

[62]Highstone v. Burdette, 54 Mich. 329, 20 N. W. 64.

[63]Hollister v. Young, 42 Vt. 403.

[64]Lamoreux v. Huntley, 68 Wis. 24, 31 N. W. 331.

[65]Lamoreux v. Huntley, 68 Wis. 24, 31 N. W. 331.

to the attention of the owner.[66] And it is said, in a Mississippi case that:[67] "Among relatives and especially between those occupying parental and filial, or quasi-parental and filial, relations, these circumstances would not be deemed so convincing because they may be consistent with a mere permissive enjoyment of a usufructuary possession."

§ 593. **Occupying to boundary line—Agreements, etc.**—We have heretofore treated of the question of parol agreements with reference to boundary lines.[68] Should adjoining owners agree upon a line between their respective lands and each occupy up to that line claiming title thereto for the statutory period, it will be deemed to be an adverse occupancy.[69] As to whether the line agreed upon was the true line is immaterial.[70] But if parties occupy merely for convenience the possession of adjoining owners will not generally be adverse.[71] Occupying land to a certain line by mistake with no intention to claim more than to the true line, will not be adverse beyond the true line.[72] But there are cases holding the other way.[73] Where grantor remains in possession after delivery of deed the possession will not be deemed adverse generally.[74] Same where one enters under contract of purchase.[75] The possession of a guardian is subordinate to ward, and a widow for dower rights to the heir.[76] To the same effect is the possession of an

[66]Allen v. Allen, 58 Wis. 202, 16 N. W. 610.

[67]Davis v. Bowmar, 55 Miss. 671.

[68]Ante. ch. XXI.

[69]Reed v. Farr, 35 N. Y. 113; Reiter v. McJunkin, 173 Pa. 82, 33 Atl. 1012.

[70]Wells v. Bentley, 87 Ark. 625, 113 S. W. 639.

[71]Bird v. Stark, 66 Mich. 654, 33 N. W. 754; Burrell v. Burrell, 11 Mass. 294.

[72]Shanline v. Wiltsie, 70 Kans. 177, 78 Pac. 436, 3 Ann. Cas. 140.

[73]Erck v. Church, 87 Tenn. 575, 11 S. W. 794, 4 L. R. A. 641.

[74]Stearns v. Hendersass, 9 Cush. (Mass.) 497, 57 Am. Dec. 65.

[75]Davis v. Howard, 172 Ill. 340, 50 N. E. 258.

[76]Brown v. McKay, 125 Cal. 291, 57 Pac. 1001; Dewitt v. Shea, 203 Ill. 393, 67 N. E. 761, 96 Am. St. 311.

agent or of a tenant,[77] and as to mortgagee and mortgagor.[78]

§ 594. **Possession must be exclusive.**—It is the rule that possession to be adverse must be exclusive. That is, there can be no divided possession with the holder of the legal title.[79] When two persons are in possession the seisin follows the owner.[80] Possession must be exclusive of all persons.[81] But it seems one may admit title in the United States or a state and still hold adversely as to all others.[82] But occupation in common with the public generally cannot be exclusive.[83]

§ 595. **Possession must be continuous.**—Another condition of the possession in order to be adverse and ripen into title is that it must be continuous. The party can not get title by holding a part of the period and then surrendering to another the lands sought to be taken. To so give up the possession before the statutory period has run will wipe out all rights theretofore gained.[84] Occasional acts of dominion extending over the statutory period is not continuous possession.[85] When possession is stopped, the running of the statute is also stopped. The running of the statute will begin to run again upon the return to possession.[86] Unless modified by statute, the entry of the owner into possession before the statutory period has run will interrupt the statute.[87] And it is not neces-

[77]Peabody v. Leach, 18 Wis. 657; Dixon v. Finnegan, 182 Mo. 111, 81 S. W. 449.

[78]Jones v. Foster, 175 Ill. 459, 51 N. E. 862.

[79]Boltz v. Colsch, 134 Iowa 480, 109 N. W. 1106.

[80]Bellis v. Bellis, 122 Mass. 414.

[81]Cass Farm Co. v. Detroit, 139 Mich. 318, 102 N. W. 848.

[82]Lord v. Sawyer, 57 Cal. 65.

[83]Hittinger v. Eames, 121 Mass. 539.

[84]Bean v. Bean, 163 Mich. 379, 128 N. W. 413; Mead v. Illinois Cent. Co., 112 Iowa 291, 83 N. W. 979.

[85]Elyton Land Co. v. Denny, 108 Ala. 553, 18 So. 561.

[86]Illinois Steel Co. v. Budzisz, 115 Wis. 68, 90 N. W. 1019.

[87]Lawless v. Wright, 39 Tex. Civ. App. 26, 86 S. W. 1039.

sary to bring an action to interrupt the running of the statute.[88]

§ 596. **Tacking possessions.**—By tacking is meant the transferring of the possession of one adverse claimant to another. But the possession of the privy must be continuous with his grantor.[89] Hence, successive periods of possession may be tacked or added to each other, and the total time held forms the entire period required by the statute.[90] But there must be a privity between the parties.[91] Tacking may exist between vendor and vendee;[92] between ancestor and heir or devisee;[93] also between landlord and tenant.[94] But there must be no gap between the occupants.[95]

[88]Shearer v. Middleton, 88 Mich. 621, 50 N. W. 737.

[89]Bird v. Whetstone, 71 Kans. 430, 80 Pac. 942.

[90]McNeely v. Langan, 22 Ohio St. 32.

[91]White v. McNabb, 140 Ky. 828, 131 S. W. 1021.

[92]Merritt v. Westerman, 165 Mich. 535, 131 N. W. 66.

[93]Montague v. Marunda, 71 Nebr. 805, 99 N. W. 653; Sherin v. Brackett, 36 Minn. 152, 30 N. W. 551.

[94]Schneider v. Botsch, 90 Ill. 577.

[95]Warren v. Frederichs, 76 Tex. 647, 13 S. W. 643.

CHAPTER XXV

HIGHWAY

Sec.
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§ 596a. **Generally.**—Broadly speaking, the term "highway" includes all routes open to the general public for passage, whether by land or water. The term as used in this chapter refers to highways on land and includes state, county and town roads, but does not generally include streets in a city or village. Many states have a dual system of highways, being usually termed state roads, county roads, and town roads. Provision is made by the statutes of the several states for the laying out and maintenance of such highways, and the student should consult the laws of the state in which the particular highway may be located Primarily, state roads are under the direct control of the state, though a state may yield the care of the particular road to the local authorities. Likewise, county roads are under the direct control of the county authorities. In the case of state roads, provision is made by law for laying out and the opening thereof. A commission or committee is usually appointed for such purpose. County roads are laid out by the county board of commissioners or by a committee intrusted

with the work. What is said in this work with reference to laying out highways is intended to apply generally to all highways. The student will note that the author speaks in general terms and not specifically as to any state law.

The surveyor has much to do with highways. He is required to make a careful survey thereof at the laying out by the public authorities. He has frequent occasion to retrace the original surveyed lines of the highway. He must know the exact location of the original corners of the highway, either at the angles or otherwise. How necessary then is it that the original survey of such highway be accurately executed, monuments permanently planted at the beginning and ending of such highway, and at each angle thereof, and, where possible, bearings be taken to trees or other natural objects in the vicinity. In this way, much trouble and possible litigation will be avoided. Not infrequently it will be found that the fences along the highway, if shown to have been built to the line of a properly laid out way, and so maintained, will aid the surveyor in locating a lost corner or a lost line in a survey of adjacent lands.

§ 597. **Laying out.**—The statutes of the several states provide the steps necessary for acquiring and laying out a public highway. The provisions of such statutes should be carefully followed. In general, such statutes provide for the initiation of a proceeding to lay out a highway by a petition to the properly constituted body by a certain number of "freeholders," "citizens," or "residents," of the particular district. Those securing such a petition must see to it that at least the full number of statutory petitioners have signed such petition and have not withdrawn therefrom. Upon the filing of such petition, the proper board or commission or trustees will proceed to give the notice required by the statutes, of the filing of such petition and of the time and place of the meeting of the "board" to decide on the necessity of laying out the highway and acting thereon. This notice should be duly posted and served in the manner

provided by law and proof thereof filed with the board before any other steps are taken. Notice should be given to all persons over whose lands said proposed highway is to run, that they may appear and protect their interests and take such steps as they may be advised in the premises. The assessment of damages and the allowance of benefits are provided for in the statutes and the order of the board in this respect should be made with great care, as the taking of private property for a highway is involved. By all means, a careful attorney should be engaged to draw up all the papers from the petition to the final order. There should be no guess work. Certainty is required.

§ 598. **Survey of highway.**—After the board or other body, having the power to lay out the highway, has determined that a highway shall be laid out, a surveyor should be engaged to make an accurate survey thereof. The surveyor should establish the points of commencement and termination thereof with reference to the original government corners; also all intermediate corners through which the way passes and the corners at all angles of the highway "according to government survey." These corners should be marked by stone or iron monuments, securely planted in the ground, and at such a depth as not to be easily removed or disturbed. Bearings should be taken to trees, or other natural objects to the end that the corners may be easily relocated in case they should be covered up by working the highway or otherwise. Full and complete notes should be made by the surveyor of all distances, bearings, monuments, witness trees and other data, and these should be recorded in the record where the proceedings are required to be recorded. When allowable, even in town roads, a record of the proceedings and the survey should be recorded in the office of the register of deeds of the county. Records of county and state roads are generally required to be recorded in the office of the county clerk or auditor of the county and in some cases in the

office of the register of deeds. The point of commencement of the highway should always be with reference to some government corner where there is one even though that corner be not on the highway. After the surveyor has established the center line of the way, he will at all corners and angles and at intervals establish the side lines, in order that fences may be built at the proper distance from such center.

§ 599. **Retracing the line of a highway.**—Surveyors are frequently called upon to retrace the original line of a way, which has become lost or obliterated. He will first secure a correct copy of the notes of the laying out and survey of the highway. No attempt to retrace such line should be made until this is done. The surveyor will then go to the locality of the highway and make a careful search for all corners as noted in the record of the original survey. He should not give up searching for some evidence of the original corners until he is satisfied that the corner is lost. He should find as many of the original corners as possible and from them and the other data establish those which are lost. Should the way run along a section or subdivisional section line, the problem is practically a re-establishment of such line or lines. Should the highway run a diagonal course and be described by metes and bounds, the surveyor would have a more difficult job. In such cases, he should, if possible, find one or more of the original lines and then carefully measure and take the bearing of such line, adjusting his tape and instrument to correspond therewith.[1] He will then proceed to establish the remaining lines and corners. If fences were originally built to the line of the way or with reference to such line and have been maintained for many years in substantially the same place, the surveyor should heed such evidence in cases where the original corners are apparently lost. "Ancient fences," where clearly proved, are better evidence of where the original corner stood

[1]Ante Ch. XV.

than can be obtained by a resurvey where the corners are apparently lost.[2] As a matter of fact, corners are not lost where they can be established by a reference to such fences.

§ 600. Highway by user or prescription.—A highway may exist even though no proceeding to lay out and establish it was ever taken or had. Such ways are termed highways by "user." They are formed by the public traveling along a certain section of country for a number of years equal to or greater than the statutory period for a prescriptive title. Such highways have existed from a very early period in all countries and the rights of the public to have such a way kept open are absolute. The author will briefly touch on this important branch of highways. Such a way may exist by user in all of the states.[3]

§ 601. The user.—In order that a highway be established by prescription or user, it must have been used by the general public, with either actual or constructive notice to the owner of the land over which it runs. Such user must have been

[2]Ante Ch. XVI; ante § 410.

[3]Cross v. State, 147 Ala. 125, 41 So. 875; Waring v. Little Rock, 62 Ark. 408, 36 S. W. 24; Barnes v. Daveck, 7 Cal. App. 220, 94 Pac. 779; Ely v. Parsons, 55 Conn. 83, 10 Atl. 499; Southern Ry. Co. v. Combs, 124 Ga. 1004, 53 S. E. 508; Chicago v. Borden, 190 Ill. 430, 60 N. E. 915; Ross v. Thompson, 78 Ind. 90; Whetstone v. Hill, 130 Iowa 637, 105 N. W. 193; Meade v. Topeka, 75 Kans. 61, 88 Pac. 574; Riley v. Buchanan, 116 Ky. 625, 76 S. W. 527, 63 L. R. A. 642, 3 Ann. Cas. 788; State v. Wilson, 42 Maine 9; Thomas v. Ford, 63 Md. 346, 52 Am. Rep. 513; Clark v. Hull, 184 Mass. 164, 68 N. E. 60; Kruger v. Le Blanc, 70 Mich. 76, 37 N. W. 880; Longworth v. Sedevic, 165 Mo. 221, 65 S. W. 260; State v. Auchard, 22 Mont. 14, 55 Pac. 361; Prichard v. Atkinson, 3 N. H. 335; Riverside Tp. v. Pennsylvania Ry., 74 N. J. L. 476, 66 Atl. 433; Speir v. Utrecht, 121 N. Y. 420, 24 N. E. 692; Stewart v. Frink, 94 N. Car. 487, 55 Am. Rep. 618; Walcott Tp. v. Skauge, 6 N. Dak. 382; Wallowa Co. v. Wade, 43 Ore. 253, 78 Pac. 892; Commonwealth v. Cole, 26 Pa. St. 187; State v. Washington, 80 S. Car. 376; Wilson v. Acree, 97 Tenn. 378, 37 S. W. 90; Heilbron v. St. Louis S. W. Ry., 52 Tex. Civ. App. 575, 113 S. W. 610; State v. Rixie, 50 Wash. 676, 97 Pac. 804; State v. Lloyd, 133 Wis. 468, 113 N. W. 964.

open, continuous, uninterrupted and adverse for the statutory period, for the accrual of prescriptive rights, and under a claim of right by the users.[4] In a Wisconsin case,[5] the court says: "It would seem that when a town for more than twenty years, pursuant to proceedings laying out a highway, opens one on a four-rod strip of land fenced out for that purpose and thereby gains a right by adverse possession to use that particular strip for such highway, it must in all reason supersede the laid-out way so far as the two do not coincide." But it is held in an Iowa case,[6] that "Use alone, with no evidence of a claim of right, would not ripen into a highway by user." The road must have been used without interruption of the land owner. If he closed the highway by erecting gates across the same there could be no way established by user.[7] The use must be adverse to that of the owner and not subservient thereto.[8] If a way be used by the public with a claim of right to such use and the public authorities perform work thereon for the statutory period the way becomes a public one to the extent worked and used.[9] It is said in a Nebraska case that,[10] "But where it is sought to show the existence of a legal public road by user alone, it must have been with the knowledge of the owner, and have continued the length of time necessary to bar an action to recover the title to land, which in this state is ten years." "This rule, however," the court goes on to say, "does not apply when, as in this case, the user is of wild, uninclosed

[4]Howard v. State, 47 Ark. 431, 2 S. W. 331; Hartley v. Vermillion, 141 Cal. 339, 74 Pac. 987; Haan v. Meester, 132 Iowa 709, 109 N. W. 211; Parkey v. Galloway, 147 Mich. 693, 111 N. W. 348; Longworth v. Sedevic, 165 Mo. 221, 65 S. W. 260; State v. Lloyd, 133 Wis. 468, 113 N. W. 964.

[5]State v. Lloyd, 133 Wis. 468, 113 N. W. 964.

[6]Friday v. Henah, 113 Iowa 425, 85 N. W. 768.

[7]Mills v. Evans, 100 Iowa 712, 69 N. W. 1043.

[8]Falter v. Packard, 219 Ill. 356, 76 N. E. 495.

[9]Rhodes v. Halvorson, 120 Wis. 99, 97 N. W. 514.

[10]Graham v. Hartnett, 10 Neb. 517, 7 N. W. 280.

prairie land."[11] The latter statement is too broad. It seems the distinction between wild, uninclosed land and occupied lands is that the occupation and use must be more pronounced in the former than in the latter.[12] And in such cases, the owner must be shown to have had knowledge of the adverse user.[13]

§ 602. **Alteration.**—The matter of the alteration of a highway may be by user of lands outside and beyond the highway, as originally laid out, or used, or it may be by the act of the public authorities. If the alteration be by the public authorities, the same degree of care in drawing all of the papers and making the survey is required as in laying out the way originally. What we have said in that respect applies also to the matter of alteration.

Alteration by user must be of the same kind and for the length of time required for securing a highway by user. In fact, it is making a highway by user and all of the conditions, such as adverse and continuous use for the entire statutory period must be met.[14] And still, as we shall see, a slight deviation from the highway, as laid out, to avoid some obstacle or by error will not amount to a vacation of the way as laid out.[15]

§ 603. **Vacation.**—A highway, either laid out by the public authorities, or acquired by user, may be vacated by the public authorities or lost by non-user. The statutes of the several states make provision for such vacation by act of the public board or trustees. In order that the vacation be legal, those

[11]State v. Kansas City & C. R., 45 Iowa 139.

[12]O'Connell v. Chicago Terminal T. Ry. Co., 184 Ill. 308, 56 N. E. 355.

[13]Gray v. Haas, 98 Iowa 502, 67 N. W. 394; Van Wanning v. Deeter, 78 Nebr. 282, 110 N. W. 703.

[14]Taylor v. Pearce, 179 Ill. 145, 53 N. E. 622.

[15]Maire v. Kruse, 85 Wis. 302, 55 N. W. 389, 26 L. R. A. 449; Konkel v. Pella, 122 Wis. 143, 99 N. W. 453.

statutes should be consulted and followed in the particular instance. The same degree of care in drawing the papers is required as for originally laying out such way.

§ 604. **Non-user.**—As we have seen in this chapter, a highway may be lost by non-user. And the law will raise a presumption of the extinguishment of the highway which has been abandoned by the public for the statutory period. Or, if there is no statutory provision, the abandonment should be for twenty years.[16] What would be an abandonment of a highway in a particular instance will depend upon the facts and circumstances in that case. There must be a clear intent upon the part of the public to abandon the road and such intent to abandon and abandonment must be clearly and satisfactorily established.[17] Non-user must be coupled with positive evidence of an intent on the part of the public to abandon.[18] If there is no use of the premises adverse to the rights of the public there must be evidence of a positive determination on the part of the public to abandon.[19]

§ 605. **Failure to open or repair.**—Most of the states have statutes providing that a highway shall be deemed to be abandoned upon failure of the authorities to open, work or repair the highway for a certain number of years.[20] Mere delay in opening and neglect to work or repair, in the absence of a statute, will not work an abandonment of itself.[21] Still property which has been taken for a highway should be opened and

[16]Greist v. Amrhyn, 80 Conn. 280, 68 Atl. 521; Heller v. Cahill, 138 Iowa 301, 115 N. W. 1009.

[17]Small v. Binford, 41 Ind. App. 440, 83 N. E. 507; Perry v. Staple, 77 Nebr. 656, 110 N. W. 652; Cox v. Commissioners, 194 Ill. 355, 62 N. E. 791; Lyons v. Mullen, 78 Nebr. 151, 110 N. W. 743.

[18]Re Jerome, 120 N. Y. App. Div. 297, 105 N. Y. S. 319; Woodruff v. Paddock, 56 Hun. (N. Y.) 288, 9 N. Y. S. 381, 30 N. Y. St. 461.

[19]Davies v. Huebner, 45 Iowa 574.

[20]Seidschlag v. Antioch, 207 Ill. 280, 69 N. E. 949; Buffalo v. Delaware R. Co., 190 N. Y. 84, 82 N. E. 513, 16 L. R. A. (N. S.) 506.

[21]Impson v. Sac. Co. (Iowa), 98 N. W. 118.

used as such within a reasonable time, and a failure to so open and use it, in the absence of a statute, will operate as an abandonment.[22] But these statutory provisions, it has been held, do not apply to a highway which has once been opened and used.[23] Nor would it apply to a case where a new highway has been laid out over an old one, as in that event the laying of the new way indicates a determination to maintain a highway at that point.[24] If the particular statute applies to a county highway only, it would not affect a street in a city or village.[25]

§ 606. **Fencing in parts of highway.**—It is the rule that the mere fact that a party had, for many years, encroached upon a road by putting a portion of his fence in the road, and otherwise, did not bar the town from the legal right of having the road at any time opened to its full width as originally surveyed and laid out.[26] And where non-users of lands dedicated to the public use, before the time they were required for such use, or the authorities properly called upon to open them, this will not operate as an abandonment of the public rights, and persons in possession will be presumed to hold subject to such rights.[27] But negligence and unreasonable delay in proceeding to open a dedicated street, after the necessity thereof arises, may operate as an abandonment by non-user, but the question is one of fact.[28] A highway or any portion of it can be lost by non-user, but that will not affect the portion kept in use.[29] Highways may be wholly, and there is no reason to hold they

[22]Clendaniel v. Conrad, 3 Boyce (Del.) 549, 83 Atl. 1036, Ann. Cas. 1915 B, 968.

[23]Eble v. State, 77 Kans. 179, 93 Pac. 803, 127 Am. St. 412.

[24]9 L. R. A. 94, note.

[25]Wallace v. Cable, 87 Kans. 835, 127 Pac. 5, 42 L. R. A. (N. S.) 587.

[26]Nicolai v. Davis, 91 Wis. 370, 64 N. W. 1001; Childs v. Nelson, 69 Wis. 125, 33 N. W. 587.

[27]Reilly v. Racine, 51 Wis. 526, 8 N. W. 417.

[28]Reilly v. Racine, 51 Wis. 526, 8 N. W. 417.

[29]Wayne Co. Bank v. Stockwell, 84 Mich. 586, 48 N. W. 174, 22 Am. St. 708.

may not be partially, discontinued by non-user.[30] A highway may be lost by non-user for a period of fifteen years.[31] The owner of lands adjoining a highway, having fenced in a part of such highway and cultivated it for thirty years or more worked an abandonment of that part of the highway fenced in.[32] The Supreme Court in Iowa holds: "Mere non-user of an easement of this character and acquired in this manner will not operate to defeat the right. Especially is this so when there is no use of the premises adverse to the rights of the public.[33] But the same court has held that the public was estopped from claiming the highway where an adjacent owner has held either a part or the entire width adversely to the public for the statutory period.[34]

§ 607. Non-user of streets distinguished from highways.—The courts have laid down a different rule as to abandonment of street in cities and villages by non-user, and the rule with reference to such abandonment of highways in the country districts, does not apply thereto. It appears that the rule as applied to cities is that there can be no abandonment of a street in a city for non-user until the street is needed in the public interests.[35] It is said: "The public use is the dominant interest, and the public authorities are the exclusive judges when and to what extent the streets shall be improved."[36] And it would seem that there is sound reasoning back of these decisions and a village or city ought not to be estopped from claiming a street which has been fenced in un-

[30]Gregory v. Knight, 50 Mich. 61, 14 N. W. 700.

[31]Lyle v. Lesia, 64 Mich. 16, 31 N. W. 23.

[32]Coleman v. Flint & P. M. Ry. Co., 64 Mich. 160, 31 N. W. 47.

[33]Davies v. Huebner, 45 Iowa 574.

[34]Orr v. O'Brien, 77 Iowa 253, 42 N. W. 183, 14 Am. St. 277.

[35]Reilly v. Racine, 51 Wis. 526, 8 N. W. 417; Childs v. Nelson, 69 Wis. 125, 33 N. W. 587; Chase v. Oshkosh, 81 Wis. 313, 51 N. W. 560, 15 L. R. A. 553, 29 Am. St. 898.

[36]Chase v. Oshkosh, 81 Wis. 313, 51 N. W. 560, 15 L. R. A. 553, 29 Am. St. 898.

lawfully by some private individual in those cases where the street at the time and place of the encroachment was not needed.[37]

§ 608. **Elevation in highway deflecting travel.**—Referring to Fig. 113, point B, represents the corner common to sec-

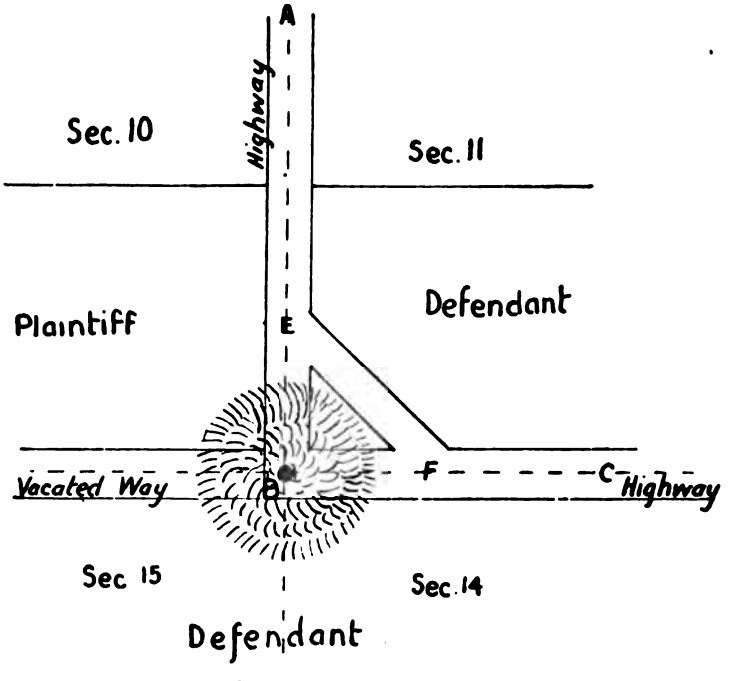


Fig. 113

tions 10, 11, 14 and 15 of a certain township. The plaintiff owns a small tract of land in the southeast corner of section 10, and the defendant owns the lands in the corners of the other sections adjacent to the common corner. A highway

[37]Webb v. Demopolis, 95 Ala. 116, 13 So. 289, 21 L. R. A. 62; Ralston v. Weston, 46 W. Va. 544, 33 S. E. 326, 76 Am. St. 834.

was originally laid out on the section line running east D-B-C and another on the line running north between sections 10 and 11 A-B. Subsequently, that part of the east and west highway west of the common corner D-B was vacated. There is a considerable elevation represented on the figure about the corner B. In order to avoid this hill the public had traveled a diagonal path across the corner of section 11 represented on plan as E-F. The plaintiff was, therefore, shut off from a highway. The defendant fenced in the highway as traveled, leaving about one-half acre of land in the corner in the form of a triangle. This diagonal highway had been traveled a good many years and there had been no travel along the north and south highway represented by B-E or the east and west highway represented by B-F for a period greater than the statutory period for abandonment. Plaintiff brought the action in equity to compel defendant to remove the fences to the end that he might find a passage out either over B-E or B-F. The court held that there could be no abandonment in such cases: that there was no intention to abandon and that it was the duty of the public authorities to put the highway in shape for travel. The court speaking through Orton J. says: "This highway, as such, has not ceased to be traveled. It is traveled all the time with this slight variation. It is the same highway as it was before the defendant cut off the plaintiff from its use at this place by fencing it up a few rods. The highway runs along that side hill, which the town, on account of the expense, failed and neglected to excavate and grade so that it might be traveled and used; and the traveling public was compelled to go around it. The highway must be 'entirely abandoned as a route of travel.' The abandonment of a highway as a route of travel implies that such highway is not needed for travel, and therefore disused and abandoned as a highway. But this highway, even along the side hill, is needed as much as ever, and it was the duty of the town to have made

it fit for travel. Whatever abandonment of this little piece of the highway there was consisted in the neglect of the town to make it passable; and the public has been compelled to go around it. Such a construction of the statute as is claimed is utterly unreasonable and would work great mischief to our highways."[38] Doubtless the court, in the above case, was influenced largely by the reading of the statute. Such statute reads: "Any highway in this state which shall have been, or may hereafter be, entirely abandoned as a route of travel, and on which no highway tax has been expended for five years, shall be considered legally discontinued, and the land of said highway shall revert to the owners." The statute robs the decision of much of its weight as a general proposition of law by reason of its peculiar reading, and still the reasoning is sound.[39]

[38] Maire v. Kruse, 85 Wis. 302, 55 N. W. 389, 26 L. R. A. 449.

[39] Witter v. Damitz, 81 Wis. 385, 51 N. W. 575.

CHAPTER XXVI

SURVEYS OF ORIGINAL THIRTEEN STATES

Sec.		Sec.	
609.	Generally.	616.	New Hampshire.
610.	Macomb's Purchase in New York.	617.	Pennsylvania.
		618.	General rules.
611.	The Holland Purchase in New York.	619.	Monuments on the ground.
		620.	Adjoining tracts or adjoiners.
612.	Townships.	621.	Block surveys.
613.	Resurveys and subdivisions of lots.	622.	Connecticut.
		623.	Maryland.
614.	How to secure information.	624.	Other states.
615.	Triangulation surveys.		

§ 609. **Generally.**—It must be remembered, as heretofore suggested, that the United States never owned any of the public lands in the thirteen original states. The public lands in those states were retained by the states on the adoption of the constitution. As we have seen, the rectangular system for the survey of the public lands of the federal government was inaugurated under the old articles of Confederation in 1785, and provided the manner of the survey thereafter of all public lands owned by the national government. A considerable part of the state lands owned by the thirteen original states was surveyed thereafter but none of such lands appears to have been surveyed under the rectangular system, proper.

§ 610. **Macomb's Purchase in New York.**—This purchase was an irregular one, containing 3,670,715 acres. It lay along the east end of Lake Ontario and extended down the river St. Lawrence for more than 100 miles, thence South 84° East 1574 chains, along or near the line of 45th degree of north.

latitude; thence south 60 miles and 10 chains; thence nearly west 3853 chains; thence south westerly about 30 miles; thence in a southerly and northwesterly direction to Lake Ontario; thence northeasterly along that lake to the river St. Lawrence. A more particular description can not be made out from the photographic copy of the map of that purchase on file in the office of the state engineer and surveyor at Albany That official will send a photographic copy of such map upon application to any surveyor. By a reference to such map, the reader will realize the great difficulty of retracing the boundary lines of that and other purchases, and of the subdivision lines run at an early date. As heretofore stated, no one system was followed. The topography of the country had much to do with boundary lines. The work was often erroneously executed and usually no permanent marks or monuments were established. In many cases, no field-notes were preserved in any public office for the guidance of subsequent surveyors. While imperfect maps were generally made of the survey of a purchase or grant, yet frequently those maps were left with the owner of the grant or purchase and there remains no record of what was done. Thus, the authorities are in many cases obliged to seek topographical and traditional information as the only means of retracing boundary lines to valuable lands.

To the end that the reader may have some conception of the perplexing problems encountered by surveyors in retracing old lines in the Empire state, we quote herewith from a letter of the Hon. Frank M. Williams, state engineer:

"In answer to same (letter of inquiry) would state that in Revolutionary times and previously, there was no plan or design for surveying the unappropriated lands of the state. They were settled in a very haphazard manner, all sizes and descriptions of lots by the early settlers and explorers. Some of the larger tracts of land were bought by a person and his associates and divided to suit his convenience, and in many

cases, the maps showing the subdivisions of these great tracts, were not filed with the state.

"The military gratuity lands in central New York were divided into townships of about ten miles square as nearly as the nature of the ground would permit, and these were divided into one hundred lots approximately one mile square. These lands were allotted to the army and navy for services in the Revolutionary War.

"In western New York, the land was formerly owned by the Holland Land Company. That Company divided the land into townships and ranges about six miles square, and these townships were divided in some cases into one hundred lots, and in others a subdivision into sections of which about ten were covered in a great lot. This plan was not adhered to in all cases and resulted in many irregular parcels of land.

"I enclose you a photograph of the northwestern part of New York State bought by Macomb and his associates, showing what irregular shaped parcels of land were sold to him and how unevenly the lots were divided."

We regret that the limits of this work do not permit publishing a copy of the Macomb map.

In the latter part of the eighteenth century, at about the time of the adoption of the rectangular system of survey by the federal government, we find the original states improving the theretofore system of surveys, simplifying and systematizing them to the end that a tract of land might be described more accurately and located with reference to certain main or principal lines.

§ 611. **The Holland Purchase in New York.**—As a splendid example of these improved surveys, under the many systems in use in the several states, we will briefly refer to the survey of the so-called "Holland Purchase" in western New York. Like all modern surveys the survey of this tract of land was made with reference to two well known main lines,

which were first run and to which references are made throughout the survey. The first of these lines was termed a "base line," and its use the same as the base lines under the rectangular system. From such base lines the townships were numbered toward the north as they were run out, beginning with such base line. This line for the Holland Purchase was the same as the northern boundary of the state of Pennsylvania.

The other line to which reference has been made, was termed a "transit line." This, in a way, corresponds to the principal meridian in the rectangular system. These lines were known in the survey of the Holland Purchase as the "east transit line" and the "west transit line." They were run due north and south, and are true meridians. In the Holland Purchase, the ranges were numbered west from the east transit line. In respect to numbering the towns and ranges, the practice was similar to the manner of numbering under the new system.

This survey was made under the direction of Joseph Ellicott as head surveyor, beginning in the year 1797. He ran the east transit line in 1798, and then proceeded to run the township and range lines.[1] We are told this survey was similar to the one followed on the Phelps and Gorham Purchase, a large tract of land in the same state and farther to the east.

§ 612. **Townships.**—After the principal lines had been run as indicated, the surveyors next ran out the exterior lines of the townships. The townships were, in the main, six miles square, as near as could be made. Along the exteriors of the townships lot corners were established at each three-quarters of a mile. It will thus be seen that the townships were subdivided into sixty-four lots or eight each way, containing an area, as near as may be, of three hundred and sixty acres. As is known, the natural convergence of the meridians would

[1] History of Erie County, 13.

make the townships a little less than six miles across the north side and the lots a little less than three-quarters of a mile along the north side. The lots were numbered from 1 to 64, beginning in the southeast corner of the township with number 1 and running north along the east side to number 8 in the northeast corner thereof: thence beginning with number 9, west of number 1 on the south boundary of the township and proceeding north to the north boundary of the township to number 16 west of, and adjacent to number 8. Proceed in the same manner with numbers 17, 25, 33, 41, 49, and 57 along the south boundary of the township, closing with number 64 in the northwest corner of the township. The greater part of the Holland Purchase was surveyed under this system and, compared to earlier surveys, was simple and intelligible. The townships in some of the surveys were divided into 16 sections, each of approximately one and one-half miles square. This system, it will be seen, would give sixteen sections to the township. We are indebted to the Hon. Willis G. Clark, of Springville, Erie Co., N. Y. for much data relative to the Holland Purchase survey.

§ 613. **Resurveys and subdivisions of lots.**—The limits of this work will not permit of a study of the various systems followed in the survey of the many purchases or grants. Suffice it to be said, however, that in making subdivision of lots or sections, the surveyor should procure as full notes of the original survey as is possible before beginning a resurvey or a subdivision of a lot or section.

The rules laid down in other parts of this work for a retracement of original surveys, so far as applicable, will apply equally to the systems under consideration in this chapter. Single and double proportionate measurements will be applied where possible to the end that corners and lines may be re-established at the place where originally planted.

§ 614. **How to secure information.**—In many of the original states extensive surveys are being made at this time to the end that more accurate information be had as to the bases of the surveys of various grants. Bases are being established and different grants connected by triangulation or otherwise in those states where no particular system was followed. By communicating with the secretary of state of any such state, information can be secured as to the proper department to whom to write for notes of surveys and data of old surveys, if in existence. The local surveyor should secure all such information before beginning a resurvey.

Should a person, resident of any state, desire information relative to the different systems of surveys followed in the original states, he can secure much valuable help by referring to the historical society collections of his own state. The particular system followed in a given county is frequently discussed in the histories of that county to which reference may be had.

§ 615. **Triangulation surveys.**—As heretofore noted, many of the original thirteen states are providing a system of triangulation lines in the different parts of the state to which detached tracts may be tied for a more perfect description. The state of Massachusetts has taken a leading part in triangulation surveys in that state. For information to the reader relative to the state of Massachusetts, we here quote from a letter of Hon. William F. Williams, state engineer of that state:

"Replying to your questions in their order, I beg to state to No. 1 that the only public lands that have been surveyed in this state are a few detached tracts like the Province Lands, in Provincetown, etc., but these are not of very extensive area, and I do not think are what you have in mind as "public lands." I am under the impression that you mean surveys similar to those made by the federal government in the western states, covering all the land, but nothing of that kind has ever

been done in Massachusetts. A triangulation survey of the state has been made, also surveys for determining the geographical location of all the town boundaries and corners, and a general survey was made by the United States geological survey covering the entire state a number of years ago which resulted in their publishing fifty-four sheets known as the topographical survey, but that does not show property lines. These sheets have recently been corrected by this department and a new edition issued showing the town lines, but no lines of individual or state ownership.

"To your second question I should say there is no published work describing the original surveys for the reason already stated that no such survey has been made although the surveys of reservations have been mapped but I am not sure that any of these maps are now available. I do not know that any particular description was given of the method of making the survey.

"To your third question, I would say that we have no maps of townships divided into lots and sections similar to the western states.

"In answer to the fourth question, no original survey of lands was made by the state before the Union was formed or since.

"Some years ago a law was passed for registration of lands where the title was not entirely clear, by the establishment of what is known as the land court. This court has made a rule requiring all surveys of land for registration to be connected with some known triangulation point so that the corners of the survey can be geographically calculated. In the course of time a considerable portion of the various lands of private and public ownership will in this way become connected with triangulation points from which the location of the corners of these lands can be determined geographically if all the marks are lost. But as I have already stated, no survey, similar to

the government surveys in the west, has ever been undertaken in this state."

§ 616. **New Hampshire.**—The early surveys of lands in New Hampshire are practically like those of Massachusetts. The topography of the country was the basis of most of those surveys: practically no records are extant, and it is practically impossible to retrace old lines with any assurance of certainty. However, about the year 1870, a survey of the whole state was made by a Mr. Hitchcock, but that we are told, "is only fairly accurate locally, but for a survey of the whole state is fairly good." The township lines of that state are supposed to be resurveyed and marked every seven years, and we are told that "this practice is usually carried out."

§ 617. **Pennsylvania.**—All of the lands in the state of Pennsylvania, except the small triangle bounded by Lake Erie on the north, were granted to William Penn in 1681, by Charles II, king of England. In the year 1684, Penn began to grant warrants and patents for lands in his province as "True and absolute proprietor and governor." This was continued until 1779, at which time the assembly of that state passed an act for "Vesting the lands of the proprietaries of Pennsylvania in the commonwealth." Manors and proprietary tenths which had been surveyed and returned prior to July 4, 1776, private estates, etc., were excepted from this act. The act authorized the payment of one hundred and thirty thousand pounds to the heirs of Thomas and Richard Penn, "late proprietaries, as compensation for their lands."

The lands granted under Penn seem to have been surveyed much like the lands of the other states of that day. The topography of the country was largely responsible for the irregular tracts in many parts of that state. However, the state has surveyed all of its lands patented since 1779, and has fairly accurate records thereof, we are informed. On the whole, the surveys and records thereof in that state appear to

be in much better shape than in many other of the older states.

Where the boundaries of two tracts or grants overlap, upon a survey being made, the courts have decided generally speaking, "that where any interference exists between two surveys, the senior survey takes title to the lands included in the interference."[2]

§ 618. **General rules.**—The courts of that state have laid down three general rules to be followed by surveyors in relocating an old survey.

First: The marks or monuments, natural or artificial, on the ground are the best evidence of the true location thereof.

Second: Calls for adjoining tracts of lands as boundaries are the next best evidence of the true location.

Third: The courses and distances as shown on the draft of the deputy surveyor are the next best evidence but the weakest and the least to be regarded is that of distance.[3]

§ 619. **Monuments on the ground.**—By monuments on the ground are meant trees, natural, or artificial monuments marked by the deputy surveyor at the time he surveyed the tract at the corners or angles of the lines and which monuments are called for in the plat returned by the surveyor. Also marked trees along the line.[4]

§ 620. **Adjoining tracts or adjoiners.**—Deputy surveyors were not required to resurvey and remark a line, the common boundary between the tract being surveyed and another tract already surveyed. In fact, the courts held it improper to make such resurvey and remarking as it tended to confusion. In that case, the deputy would note the adjoining survey but would not plant any monuments. Such a survey is called a

[2]VI Journal of the Engineers' Society of Pennsylvania, 172.

[3]VI Journal of the Engineers' Society of Pennsylvania, 172.

[4]VI Journal of the Engineers' Society of Pennsylvania, 172.

"chamber survey," and the only way it can be relocated is to locate the adjoining survey.[5]

In all these resurveys, it is an invariable rule that lines must go to known monuments or corners, even though the distances be greater or less than called for in the original survey.[6]

§ 621. **Block surveys.**—And we find in the rules that "Where lands are surveyed together in a block, which heretofore has been defined, the law is, that the entire block must be surveyed as one tract and that any monument of the block is also a monument for every tract of land within the block."[7] All Pennsylvania surveyors should possess all of the numbers of the "Journal of the Engineers' Society of Pennsylvania." The records of surveys in that state are remarkably complete considering the circumstances.

§ 622. **Connecticut.**—The same haphazard system of surveys, disconnected and full of errors, and practically without records or data for the future guidance of surveyors, as prevailed in other New England states, was followed in Connecticut. Original lines are poorly marked. Little has been done in the way of running triangulation lines and it is practically impossible for the surveyor to retrace the original lines with any degree of satisfaction. The state has no surveyor general or land department and is generally regarded as away behind the sister states in a general survey of the state, although this was urged by its last surveyor-general in 1874.

§ 623. **Maryland.**—Practically all of the lands of the present state of Maryland were granted by Charles I of England to Lord Baltimore in 1631. As was the practice in other states, he sold parts of these lands to others and surveys of the granted tracts were made much the same as in other states

[5]VI Journal of the Engineers' Society of Pennsylvania, 173.

[6]VI Journal of the Engineers' Society of Pennsylvania, 173.

[7]VI Journal of the Engineers' Society of Pennsylvania, 173.

and without any regard to any system. The surveys were in many instances poorly executed, were full of errors, and no records were preserved for future reference. As a result, much confusion exists as to original lines. However, the commissioner of the land office of that state has made and sent out to surveyors of that state a complete set of rules relative to the surveys of original lines. These rules should be in the hands of every surveyor of that state.[8]

§ 624. **Other states.**—Of the other thirteen original states, it may be said the same lack of system is found to exist. The records of early surveys are very imperfect and it is practically impossible to retrace original lines in many instances with any degree of satisfaction. The boundaries of different tracts frequently overlap or do not come together and the surveyor who is called upon to retrace old lines "has troubles enough of his own." It will be evident to the skilled surveyor that the best that can be done in most cases is to compromise between different claimants under the careful guidance of an honest surveyor. The task of making a general survey of the state and of running main lines connecting the many grants by tie lines is so great that many of the states shrink from the burden. It is, however, advisable that this be done at an early date.

[8]Biennial Report of the Commissioner of the Land Office of Maryland for the Years 1915-1917- and 1917-1919.

CHAPTER XXVII

THE RECTANGULAR SYSTEM IN THE DOMINION OF CANADA

Sec.
625. Generally.
626. Road allowances.
627. Township boundaries.
628. Base lines.
629. Correction lines.
630. Errors.
631. Surplus or deficiency.
632. Irregular quarter-sections.
633. Monuments.
634. Corners on correction lines.
635. Legal subdivisions.
636. Special instructions.
637. Plans of surveys.
638. Correction of survey.
639. Resurvey on petition.
640. Subdivision of sections.
641. Original boundary lines controlling.
642. Re-establishment of lost corners.
643. Road allowances to be taken into account.
644. Plans of surveys to be transmitted to provinces.
645. Penalties for molesting surveyor or destroying monuments.
646. Townships—Surplus—Deficiency.
647. Subdivision of townships.

§ 625. **Generally.**—Canada has provided for a survey of all dominion lands in the western provinces by the rectangular system. The system as so inaugurated differs considerably from our own but was evidently based thereon. In this chapter, we shall briefly touch on the provisions of that system as now in use in that country. No attempt will be made to be exhaustive but the chapter will be an abstract or review of the more important provisions of the Canadian act.

These surveys provide for the survey of dominion lands and may be found in the "Dominion Land Surveys Act," as amended March 17, 1908. The act provides that the dominion lands shall be laid out into quadrilateral townships of six miles square, each containing thirty-six sections "of as nearly

one mile square as the convergence of the meridians permit." There shall be such road allowances as the governor in council prescribes.[1]

Under this act, the dominion lands in the provinces of Manitoba, Saskatchewan, Alberta, British Columbia, and the Northwest territories have been or are being surveyed. The act provides that section one shall be placed in the southeast corner of the township, and continue with two, three, four, five and six along the south boundary of the township. Then with section seven north of section six run easterly to section twelve until the east border of the township is reached. Thus continue back and forth to number thirty-six in the northeast corner of the township.[2]

§ 626. **Road allowances**—There is a unique provision in the act pertaining to road allowances and one to be commended. It is provided that there shall be a road allowance along all range lines. Likewise, there shall be a road allowance along alternate township lines. This latter provision provides that there shall be such allowance along the south boundary of the townships; another allowance at two, four and six mile points. These allowances are exclusive of the sections and no part thereof is taken from the area of the section. These allowances are generally 100 links in width, though such width varies along correction lines. Fig. 114. In some of the systems the road allowances are 1.50 chains.[3]

§ 627. **Township boundaries.**—The act provides that the lines bounding townships on the east and west sides shall be meridians; and those on the north and south sides shall be "chords to parallels of latitude."[4] The townships are numbered in regular order northerly from the base line which

[1]The citations in this chapter will be to pages in the "Manual of Instructions for the Survey of Dominion Lands," issued in 1918. We will abbreviate the title to, "Survey of Dominion Lands."

[2]Survey of Dominion Lands, 15.

[3]Survey of Dominion Lands, 44.

[4]Survey of Dominion Lands, 15.

coincides with the international boundary or 49th parallel of latitude. The ranges in Manitoba are numbered east and west from a certain meridian called the principal meridian, which begins at the international boundary "about ten miles

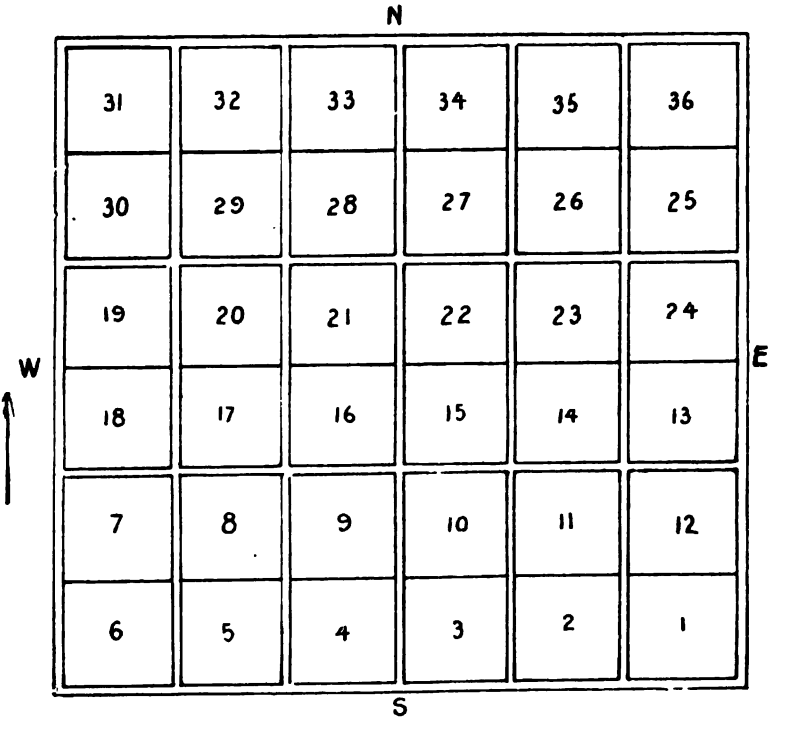


Fig.114

west of Pembina." Other meridians styled the 2nd, 3rd, 4th, 5th, etc., have been established in other provinces.[5]

The townships are given their prescribed width on the base line. The meridians between townships are drawn across such bases, north and south to the depth of two townships, i. e., to the correction lines.[6]

[5]Survey of Dominion Lands, 15. [6]Survey of Dominion Lands, 16.

§ 628. **Base lines.**—Each survey has a base line which is run with great care astronomically and at right angles to the principal meridian. The principal meridian and the base line are the initial points of the survey. The international boundary is made the first base line; the second base line is between townships four and five; the third between townships eight and nine; the fourth, between townships twelve and thirteen, and so on northerly.[7] With respect to base lines, the Canadian surveys differ materially from our own.

§ 629. **Correction lines.**—Correction lines are established on lines running east and west between townships and midway between the base lines. They are the lines between townships 2 and 3; between townships 6 and 7; and townships 10 and 11, etc.[8] The act also provides that each section shall be divided into four quarters of one hundred and sixty acres "more or less." These correction lines are run with the same degree of care as are the base lines. Corners are planted on all such lines 40 chains apart. Allowances for convergence are made on the correction lines as in the United States.[9]

§ 630. **Errors.**—The north and south errors in closing on the correction lines are thrown on the quarter-sections on both sides of the correction lines, except in the case of the north and south error in those townships between the first and second base lines, which error is to be left in the quarter-sections adjoining the first base line.[10]

§ 631. **Surplus or deficiency.**—The east and west deficiency or surplus of a township is thrown into the ranges of quarter-sections adjoining the west boundary of the township.[11] This provision is similar to the American plan, but differs from it widely in the manner of its execution.

[7]Survey of Dominion Lands, 16.
[8]Survey of Dominion Lands, 16.
[9]Survey of Dominion Lands, 16.
[10]Survey of Dominion Lands, 17.
[11]Survey of Dominion Lands, 17.

§ 632. **Irregular quarter-sections.**—All irregular quarter-sections or other parcels of land are returned by the surveyor at their actual contents. All road allowances passing through sections should not be included in such contents.[12]

§ 633. **Monuments.**—A single row of monuments only to indicate the township, section and quarter-section corners shall be placed on any survey line. On the north and south lines the monuments shall be placed on the west limits of the road allowance; and on the east and west lines, they shall be placed in the south limits of the road allowance. These corners shall fix the boundary corner between the adjoining townships, sections or quarter-sections, on the opposite side of the road.[13]

§ 634. **Corners on correction lines.**—Township, section, and quarter-section corners on correction lines are placed and marked independently for the townships on each side. When a road allowance is laid out along such line the monuments shall be placed in the limits of such road allowance and adjacent to the lands they are intended to define.[14]

§ 635. **Legal subdivisions.**—"To facilitate the description for letters patent of less than a quarter-section," say the instructions, "every section shall be taken to be divided into quarter-quarter sections, each of forty acres more or less, which shall be styled legal subdivisions, and shall be numbered as shown," in Fig. 115.[15]

§ 636. **Special instructions.**—Notwithstanding anything in the act, the minister may direct that the lands bordering on any river, lake, bayou, water course, or public road, be surveyed and divided into lots of any frontage or depth in such manner and with such roads as appear desirable; that the lands may be surveyed out into town or village lots with such streets and lots as may be necessary; that roads sixty-six feet in width may be laid out where desirable; that lands in Yukon Territory, and parts of Alberta, British Columbia and Saskatche-

[12]Survey of Dominion Lands, 17.
[13]Survey of Dominion Lands, 17.
[14]Survey of Dominion Lands, 17.
[15]Survey of Dominion Lands, 18.

wan, and the Northwest Territory, be surveyed and laid out into such lots as may seem advisable; that lands in mountainous parts of the country may be laid out into townships, sections, etc., and located astronomically or by triangulation.

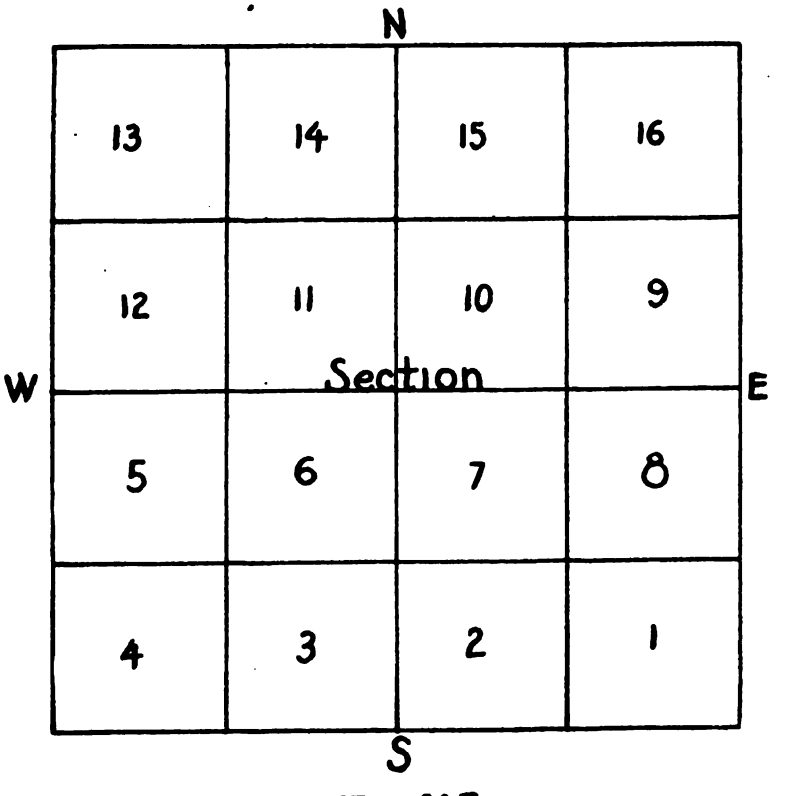


Fig. 115

These provisions leave to the minister a large latitude in special instructions in certain cases.[16] It will be remembered that the United States act has a similar provision.

[16]Survey of Dominion Lands, 18.

§ 637. **Plans of surveys.**—Plans of surveys are made and filed with the department of the interior. Survey deemed complete when the official plans have been confirmed. If the plan is erroneous or fraudulent, it may be corrected. These plans are platted from the field-notes under the direction of the surveyor-general; they show the direction and length of the boundaries; the area, the kind and position of monuments. The corrected plan referred to herein shall take the place of the old plan but no vested rights acquired under the old plan shall be disturbed.[17]

§ 638. **Correction of survey.**—Ample instructions are given for the correction of fraudulent or erroneous surveys. Where a monument is not at the place where it should have been planted, the minister may order that the monument be removed and another planted at the proper place; but no monument defining the boundaries of land for which letters patent have issued shall be displaced without the consent in writing of the owner thereof. The same provision prevails as to homesteaders or to those holding vested interests under lease or land contract. But if the error is five chains or more it may be corrected by the minister without the consent of the parties. If improvements have been made on the land and are thus acquired by another such other shall pay therefor.[18]

§ 639. **Resurvey on petition.**—A resurvey will be ordered on petition of owners of lands, representing that a part or all of the original monuments have disappeared or can not be found. Before such resurvey, notice thereof must be given in the Canada Gazette. Any person having a knowledge of the location of the original monument shall give notice thereof to the minister and his testimony will be taken. Other testimony will also be taken as to location of such corner and thereafter the corner shall be re-established. This shall be the true corner even though the original monument should

[17]Survey of Dominion Lands, 19. [18]Survey of Dominion Lands, 20.

thereafter be found. All resurveys shall have the effect of the original survey and shall take the place of such survey.[19]

§ 640. **Subdivision of sections.—A section line shall be established** by running a straight line between the opposite original section corners, giving the quarter-sections involved an equal breadth. In laying out a half-section or a quarter-section, the surveyor shall connect the opposite quarter-section corners by a straight line. Where any such quarter-section corner has not been marked by a monument in the original survey, "then such corner shall be established by giving to each half-section its proportionate share of such limit according to the official plan of the township, and the half-sections shall then be laid out by connecting the corner so established to the opposite corner." In laying out other subdivisions, the surveyor shall "give to every such subdivision its proportionate share of the frontage and interior breadth, according to the official plan of the survey, and connect the resulting terminal points by a straight line."

The lines so run on the ground shall in the respective cases, "be the true lines or limits of such section, half-section, quarter-section, legal or authorized subdivision, whether they correspond or do not correspond with the area expressed" in the plans or patents of such lands.[20]

§ 641. **Original boundary lines controlling.—All original** boundary lines run, shall, after "confirmation of the survey or resurvey by the surveyor-general," be the true boundaries. Every division shall consist of the whole width included between the monuments making the boundaries and "no more or less." All road allowances laid out under the act shall be "public highways and commons." The boundary lines established under the act shall be the true boundaries of such allowances. In making surveys of such highways surveyors

[19]Survey of Dominion Lands, 21-22.

[20]Survey of Dominion Lands, 22-23.

shall follow the same rules and regulations as for the survey of townships, as far as such rules and regulations are applicable.[21]

§ 642. **Re-establishment of lost corners.**—Whenever a dominion surveyor is required to re-establish a lost corner, "he shall obtain the best evidence that the nature of the case admits of, respecting such monument; but if its position can not be satisfactorily so ascertained, he shall proceed as follows:

"a—If the lost monument is that defining a township corner, he shall report the circumstances of the case to the surveyor-general, who shall instruct him how to proceed.

"b—If the lost monument is on one of the outlines of a township, or on one of the interior meridian section lines of a township, he shall connect by a straight line the nearest section or quarter-section corners found on such outline or such interior meridian section line, and divide such straight line into such number of quarter-sections as it contained in the original survey, giving to each a breadth *proportional* to the breadth shown on the official plan of the township.

"c—If the lost monument is on the outline of a township and all the monuments between it and the corner of the township, together with the monuments defining the said corner, are also lost, the township corner shall be re-established as provided in paragraph (a), previously to re-establishing the outline of the township;

"d—When the lost corner is that of a quarter-section on a section line running east and west in the interior of a township, the surveyor shall connect by a straight line the opposite section corners on the meridian boundaries of the section, and give to each quarter-section a breadth proportional to the breadth shown on the official plan of the township;

"e—When a corner on either of the meridian boundaries of

[21]Survey of Dominion Lands, 23-24-25.

the section is also lost, such meridian shall be re-established previously to re-establishing the east and west line."[22]

§ 643. **Road allowances to be taken into account.**—"Whenever a surveyor places a monument, as aforesaid, to re-establish a lost corner, he shall duly take into account any allowance for a road or roads; and the corner or division or limit so established, shall be the true corner, or division or limit of such township, section or quarter-section." Nevertheless surveys and resurveys in the dominion may be made on the order of the minister, in such manner, not inconsistent with the act, as may be directed.[23]

§ 644. **Plans of surveys to be transmitted to provinces.**—The minister shall cause to be transmitted as soon as may be after a survey is completed, complete plans thereof to each registration district in the provinces of Manitoba, Saskatchewan, Alberta, and British Columbia and in the Northwest Territories and in the Yukon Territory. Amendments shall also be transmitted to the respective districts.[24] Copies of any official plan shall be competent evidence in all cases, when attested under the signature of the minister or of the surveyor-general. Lithographed copies shall also be received and shall be prima facie evidence of the original and of the contents thereof.[25]

§ 645. **Penalties for molesting surveyor or destroying monuments.**—It is an indictable offense to interfere or molest any dominion land surveyor; also to knowingly or willfully destroy monuments; also to willfully deface any mark of the limit of a boundary; also to be in possession of monuments, not for any lawful purpose, and upon conviction, heavy penalties are affixed.[26] But a dominion surveyor may remove a monument under the act and replace it as provided therein.

[22]Survey of Dominion Lands, 25-26.
[23]Survey of Dominion Lands, 26.
[24]Survey of Dominion Lands, 26.
[25]Survey of Dominion Lands, 26-27.
[26]Survey of Dominion Lands, 28.

§ 646. **Townships—Surplus—Deficiency.**—In the third system of survey, the townships measure from south to north 483 chains and from east to west 486 chains.[27] Fig. 114. This, it must be remembered, is subject to the surplus or deficiency caused by the convergence of the meridians. That excess or deficiency is distributed equally among all quarter-sections involved. The lines bounding sections on the east and west are true meridians, or theoretically so at least. The boundary lines on the north and south sides of a section are parallel to the north and south boundaries of a township.[28] This is not the case in the first system of survey.[29]

Before subdividing a tract of country into sections, the same is surveyed into townships. This is done by projecting the base lines from the initial meridians and the control meridians for the base lines to the correction lines.[30]

Generally a single row of monuments only shall be placed on the survey line. On the north and south lines such monuments are placed in the west limit of the road allowances. On the east and west lines such monuments are placed in the south limits of road allowances. These monuments fix the position of the boundary corners between the adjoining townships and sections or quarter-sections on the opposite side of the road allowance.[31] However, on all correction lines, monuments shall, in all cases, be placed and marked independently for the townships on each side. And where a road allowance is placed along a correction line, such monuments shall mark the limits of such allowance.[32]

Fig. 116 represents a road allowance along a correction line, of course, greatly exaggerated in order to illustrate the point desired. Line GH represents the north boundary of a township lying south along which line monuments were placed and

[27]Survey of Dominion Lands, 46.
[28]Survey of Dominion Lands, 46
[29]Survey of Dominion Lands, 74.
[30]Survey of Dominion Lands, 43.
[31]Survey of Dominion Lands, 17.
[32]Survey of Dominion Lands, 17.

marked independently of those on the line EK. But still the central meridian from the south, AM, is perpendicular to GH, and that from the north BN is perpendicular to EK. OP is made 100 links: BC would be 100 plus S, and AD would be

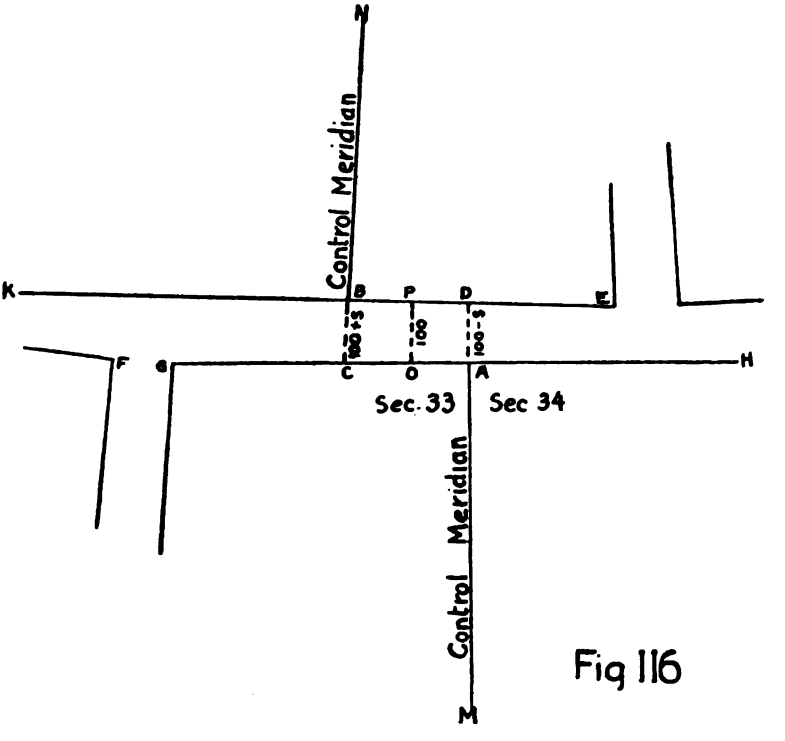


Fig 116

100 minus S. These are fixed by computation on the basis of the length of AC. The angle between the two control meridians is equal to the convergence and is taken from astronomical tables.[33] The control meridian, AM, is run south from the northeast corner of section 33.[34]

§ 647. **Subdivision of townships.**—The method of the subdivision of a township in the third system of survey in the

[33]Survey of Dominion Lands, 80. [34]Survey of Dominion Lands, 78, 81.

Dominion of Canada differs radically from the method pursued in the United States. A control meridian is run due south from the northeast corner of section 33 in the township and a control chord is run due east from the northwest corner of section 18 of the same township. The two lines intersect

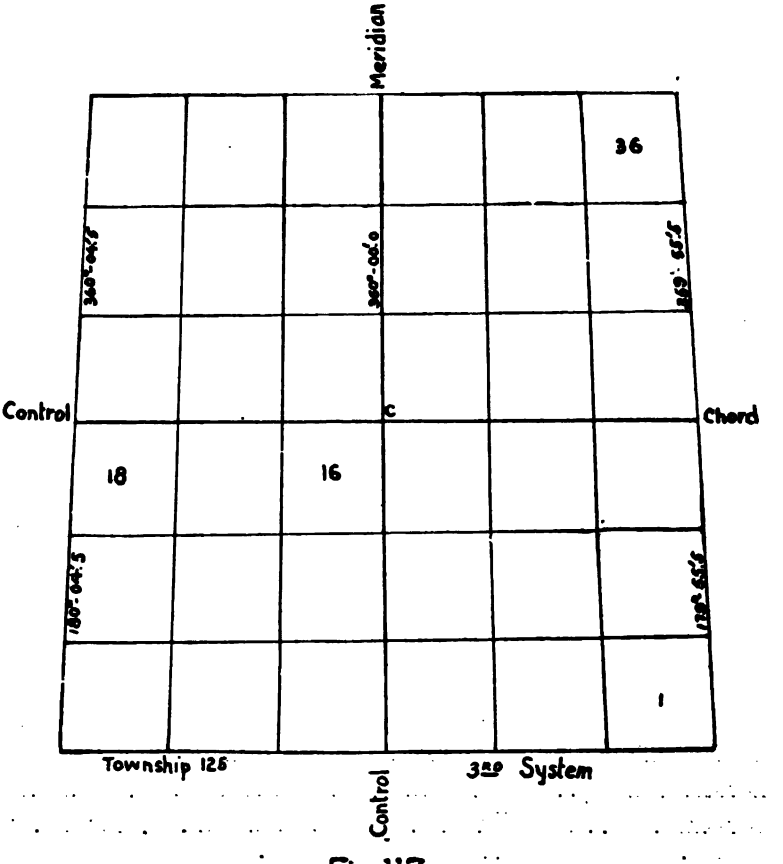


Fig. 117

at the northeast corner of section 16. Theoretically, the boundaries of the sections in township 125 of the third system would be shown as in Fig. 117. The east and west lines would

be parallels. The lines bounding the sections on the east and west sides of the sections would run on true north and south lines. The figure is greatly exaggerated to show the convergence of the meridians. The east and west lines are run at right angles to the control meridian. The north and south lines are run due north and south from the control chord.[85]

[85]Survey of Dominion Lands, 79.

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